

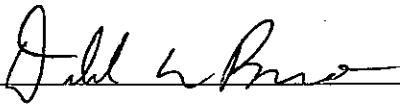



NC-73 (Sam Furr Road) Widening  
From West of US-21 (Statesville Road) to East of SR-2693 (Davidson-Concord Road)  
Town of Huntersville  
Mecklenburg County  
Federal Aid Project No. STP-73(16)  
WBS No. 38824.1.1  
STIP Project No. R-2632

## **ADMINISTRATIVE ACTION CATEGORICAL EXCLUSION**

UNITED STATES DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
&  
NC DEPARTMENT OF TRANSPORTATION

06/01/09   
Date  Gregory J. Thorpe, PhD, Manager  
Project Development and Environmental Analysis Branch

6-5-09   
Date  John F. Sullivan, III, PE, Division Administrator  
Federal Highway Administration

NC-73 (Sam Furr Road) Widening  
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STIP Project No. R-2632 (Sections AA and AB)

**ADMINISTRATIVE ACTION  
CATEGORICAL EXCLUSION**

**Prepared for:**

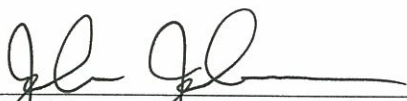



NC DEPARTMENT OF TRANSPORTATION  
&  
UNITED STATES DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

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Project Development and Environmental Analysis



## **PROJECT COMMITMENTS**

**NC-73 (Sam Furr Road) Widening  
From West of US-21 (Statesville Road) to East of SR-2693 (Davidson-Concord Road)  
Town of Huntersville  
Mecklenburg County  
Federal Aid Project No. STP-73(16)  
WBS No. 38824.1.1  
STIP Project R-2632 (AA and AB)**

The following special commitments have been agreed to by the North Carolina Department of Transportation (NCDOT) and the Town of Huntersville:

***Project Development and Environmental Analysis:***

- Section AB shall be re-evaluated for impacts to the human and natural environment at a later time when funding for that section is available.

***NCDOT Alternative Delivery Unit/Division 10/Human Environment Unit /Town of Huntersville:***

- The NCDOT and the Town will continue to work with residents of affected communities to develop mitigation strategies for neighborhood impacts. The following options will be considered during design: use of landscaping, berms, or vegetative screens based on NCDOT policies and guidelines.
- The design and construction of the AA section shall avoid jurisdictional stream impacts (Stream A).
- Prior to and during construction, the NCDOT and the Town shall coordinate with Charlotte-Mecklenburg Schools (CMS) and Emergency Management Services to identify appropriate detour routes for school buses and emergency response services so as not to significantly disrupt school bus operations and emergency response times.
- The Town shall coordinate with the local media prior to and during construction of Section AA to alert the public of traffic restrictions and construction activities.
- The Town of Huntersville desires a wider sidewalk and planting strip for the proposed typical section of AA. The Town will incur all costs associated with wider sidewalks and a planting strip if incorporated in final design.

***Other:***

- Future improvements to the rail line (east of NC-115) to accommodate commuter rail service shall be coordinated between Jim Harris, NCDOT State Railroad Coordination Engineer, Wiley McCain at Norfolk Southern Corporation, and David Carroll at CATS.
- The NCDOT Hydraulics Unit will coordinate with the Federal Emergency Management Agency (FEMA) and local authorities to ensure compliance with applicable floodplain management ordinances.

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## 1. INTRODUCTION

The North Carolina Department of Transportation (NCDOT) and the Town of Huntersville (the Town), in cooperation with the Federal Highway Administration (FHWA), propose to improve NC-73 (Sam Furr Road) from west of US-21 (Statesville Road) to SR-2693 (Davidson-Concord Road) in Mecklenburg County, North Carolina (see **Figure 1**). The proposed project is included in the *2009-2015 State Transportation Improvement Program (STIP)* as STIP R-2632. The project consists of widening 4.3-miles of NC-73 (Sam Furr Road), hereafter referred to as NC-73, from a two-lane roadway to a multi-lane facility. The project is divided into two sections in the current STIP:

- **R-2632AA** – from US-21 (Statesville Road) to NC-115 (Old Statesville Road) (scheduled for construction in 2012)
- **R-2632AB** – from NC-115 to SR 2693 (Davidson-Concord Road) (construction unfunded)

Due to the rapid development of the corridor, this document and supplemental technical reports/studies, update the methods and analysis results documented in the *1993 Categorical Exclusion (1993 CE)*. This document is intended to satisfy the requirements of the National Environmental Policy Act (NEPA).

### 1.1 Project History

Initial funding for the project was established in the NCDOT *1990-1996 STIP*. Right-of-way acquisition was scheduled to begin in federal fiscal year 1994 and construction in federal fiscal year 1996. However, no action was taken, as a shift in funding priorities delayed the project's implementation.

The project was included in the NCDOT *2007-2013 STIP*, which divided the project in the 'AA' and 'AB' sections. In 2005, the Town of Huntersville entered a municipal agreement with the NCDOT in order to accelerate the project. Under the municipal agreement, construction would begin prior to 2012.

### 1.2 Proposed Action

The proposed project includes the widening of NC-73 from two lanes to a four-lane divided facility from US-21 (Statesville Road) to SR 2693 (Davidson-Concord Road) along the existing alignment, the addition of curb and gutter and a shared outside lane for bicyclists in Section AA, and the use of a quadrant roadway concept to support the operation of the US-21/NC-73 intersection. **Section 3.1** provides more information on the Preferred Alternative and the quadrant roadway intersection. The proposed typical sections for both AA and AB are shown in **Figure 2**, and are described in more detail in **Section 3.4**.

### 1.3 Need for Action

The primary needs for the proposed action are documented in this section. The NC-73 corridor spans one of the region's most rapidly growing areas, and is an important east-west highway linking I-77 and I-85. NC-73 also serves as an important commercial corridor in vicinity of the I-77 interchange.

Heavy traffic occurs daily along this corridor, resulting in frequent congestion and delays. Intersections along the corridor (notably NC-73/US-21) operate over capacity, contributing to the "stop and go" or "slow and go" conditions. These congested conditions contribute to a higher crash

rate (per 100 million vehicle miles traveled) relative to the state based on similar two-lane undivided urban routes.

### **1.3.1 Existing Road Network**

The existing road network serves traffic demands and travel patterns for commuters within and outside of the project area, and includes a system of primary state routes and interstates surrounding and connecting with several local arterial routes. These NC routes and interstates serve commuters traveling to and from multiple major employment centers within and outside of the study area.

**NC-73** is a four-lane facility from US-21 to Holly Point Drive, and a two-lane facility from east of Holly Point Drive to SR-2693 (Davidson-Concord Road). It runs east-west through the project area and is classified as a major thoroughfare. The posted speed limit is 45 miles per hour (mph) from US-21 to NC-115 and 55 mph east of NC-115 to SR-2693 (Davidson-Concord Road). NC-73 crosses the Norfolk Southern Railroad (NS) “O” line at-grade just east of NC-115.

**I-77** is a full access control interstate facility that passes through Huntersville in North Charlotte and is just west of the US-21 and NC-73 intersection in the project vicinity.

**US-21** is a two-lane facility that runs north-south in the area. It is classified as a minor collector and has a posted speed limit of 35 mph.

**Holly Point Drive** is a two-lane roadway that runs northeast-southwest in the area. This road is classified as a local road with a posted speed limit of 35 mph and connects US-21 to NC-73.

**Rich Hatchett Road** is a two-lane roadway that runs north-south in the area. It is classified as a local road with a posted speed limit of 35 mph and connects US-21 to NC-73 through a residential area. Northcross Village was recently constructed at the intersection of NC-73 and Rich Hatchett Road.

**NC-115** is a two-lane facility that runs north/south in the area. This roadway is classified as a minor collector with a posted speed limit of 45 mph and runs parallel to the NS “O” line.

**SR-2693 (Davidson-Concord Road)** is a two-lane roadway that runs north-south in the area. It is classified as a minor collector with a posted speed limit of 45 mph.

### **1.3.2 Local Plans**

The NC-73 corridor is a vital corridor, as evidenced by the following planning documents the Town has adopted to guide land use and transportation planning decisions:

- *NC-73/US-21 Transportation and Land Use Vision Small Area Plan* (adopted December 5, 2005).
- *NC-73 Transportation/Land Use Corridor Plan* (adopted July 19, 2004).
- *NC-73 Small Area Land Use and Economic Development Plan* (adopted June 19, 2006).

These plans are described in more detail in **Section 4.2**. Mobility and efficient functioning are cited in these plans as a need to widen the NC-73 corridor. Furthermore, the *NC-73 Small Area Land Use and Economic Development Plan* indicates that NC-73 has a “dual role, serving both as an east-west regional connector and as a thoroughfare for local trips.”

### **1.3.3 Strategic Highway Corridor**

NC-73 is designated as a Strategic Highway Corridor (SHC) by the NCDOT. The NC-73 corridor from Lincolnton to Concord is identified as Corridor 19 from US-321 to I-85. The vision for the corridor is a “Boulevard,” which generally falls under the AASHTO Design Classification of “Arterial” or “Collector,” and has functional purpose of moderate mobility and low to moderate access.

### **1.3.4 Growth Trends and Travel Demand**

#### **1.3.4.1 Regional Growth**

Located just north of Charlotte, the Town of Huntersville has experienced tremendous growth. Huntersville’s population increased from 3,014 in 1990 to over 40,000 as of January 1, 2008, representing a growth of over 1,227 percent. Likewise, Mecklenburg County has also experienced considerable population growth from about 511,433 in 1990 to 695,454 in 2000 (36 percent). Growth projections, based on existing population trends, estimate that the population of Mecklenburg County and Huntersville will continue to grow at a notable pace (<http://www.huntersville.org>).

Rapid development around the Charlotte region has transformed the area around the I-77/NC-73 interchange from suburban fringes to centers of commerce. The Northcross Shopping Center, the North Pointe Executive Park and the residential neighborhoods of Cambridge Grove and Hampton Ridge are all disconnected from the regional roadway system except through a few access points to US-21 and NC-73. A roadway that initially supported a few suburban land use parcels and carried traffic to rural arterial roadways has reached capacity limits (*NC-73/US-21 Transportation and Land Use Vision Small Area Plan*, January 2006).

#### **1.3.4.2 Existing and Future (No-Build) Traffic Conditions**

The *NC-73 Widening (R-2632) Traffic Analysis Report* (March 2009) documents the traffic analysis method and results for the proposed project.

The level of service (LOS) is a qualitative measure that characterizes operational conditions within a traffic stream or flow. LOS is measured by letter designations A through F, representing the motorist’s perception of operating conditions. LOS A generally represents the best operating conditions, and LOS F represents the worst. In urban areas, LOS D is generally considered acceptable, while in rural areas LOS C is considered acceptable.

**Arterial Level of Service.** The existing (2006) ADT volumes for NC-73 range from 9,200 east of NC-115 to 27,400, which includes the most congested area between US-21 and NC-115. The existing volumes on Holly Point Drive are 2,100 vpd. Existing traffic volumes create congested conditions along NC-73. With substantial growth and development along the corridor, congestion continues to diminish the ability of NC-73 to efficiently serve commuters and travelers.

**Table 1** summarizes LOS conditions for the existing (2006) and future No-Build conditions. These levels of service are based on this calculated speed and the arterial class for a road segment. The existing corridor operates at LOS C in the eastbound direction and at LOS B in the westbound direction. As expected, the western end of the corridor (west of NC-115) operates at worse levels of service than the eastern end (east of NC-115). With the forecasted 2030 traffic, the overall arterial levels of service degrade to LOS F in both directions.

**Table 1:** Existing (2006) and No-Build (2030) Roadway Segments Levels of Service

NC-73 Roadway Segment	2006 Existing		2030 No-Build	
	EB	WB	EB	WB
I-77 to US-21	F	C	F	F
Holly Point Drive to Rich Hatchett Road	-	-	F	F
Rich Hatchett Road to NC-115	D	A	F	E
NC-115 to Davidson-Concord Road	A	C	C	F
<b>Total*</b>	C	B	F	F

\*Total overall calculated LOS for entire corridor.

**Intersections.** Intersections in the study area were analyzed for the Existing (2006), 2030 No-Build, and 2030 Build scenarios. Intersections in the project corridor currently operate at poor levels of service. The following intersections were included in the traffic analysis:

- NC-73 and US-21
- NC-73 and Holly Point Drive
- US-21 and Holly Point Drive
- NC-73 and Rich Hatchett Road
- NC-73 and NC-115
- NC-73 and Concord-Davidson Road

The LOS criteria for signalized and unsignalized intersections are shown in **Table 2**. The LOS for the intersections is based on the calculated delay for the intersection.

**Table 2:** LOS Criteria for Signalized and Unsignalized Intersections

Signalized Intersections			Unsignalized Intersections	
LOS	Delay per Vehicle (seconds)	Definition	LOS	Delay per Vehicle (seconds)
A	≤10	Free flow. Individuals unaffected by others in traffic stream. Freedom to select speed and maneuver is extremely high.	A	≤10
B	>10 and ≤20	Free flow, but presence of other vehicles begins to be noticeable. Slight decline in freedom to maneuver.	B	>10 and ≤15
C	>20 and ≤35	Stable flow, but the beginning of the range in which the influence of traffic density on operations become marked. Maneuvering requires substantial vigilance. Average traffic speed may begin to show some reduction	C	>15 and ≤25
D	>35 and ≤55	High density flow in which ability maneuver is severely restricted by increasing volumes. Only minor traffic disruptions can be absorbed without effect.	D	>25 and ≤35
E	>55 and ≤80	Flow at or near capacity. Unstable. Most traffic disruptions will cause queues to form and service to deteriorate.	E	>35 and ≤50
F	>80	Breakdown flow. Traffic exceeds capacity. Queues form behind such locations, which are characterized by extremely unstable stop and go waves.	F	>50

Source: *Highway Capacity Manual 2000*

Table 3 summarizes the LOS and delays for each intersection.

**Table 3.** Existing (2006) and No-Build (2030) Intersection LOS

Intersection	AM Peak Hour		PM Peak Hour	
	2006 Existing	2030 No-Build	2006 Existing	2030 No-Build
NC-73 and US-21	F (80.9)	F (380.3)	F (120.8)	F (466.8)
NC-73/Holly Point Drive	E (42.2)	F (~)	F (107.6)	F (~)
US-21/Holly Point Drive	D (24.5)	F (1131.1)	E (49.0)	F (~)
NC-73/Rich Hatchett Road	B (13.3)	*F (286.6)	C (24.3)	*F (240.7)
NC-73/NC-115	D (46.2)	F (321.9)	F (108.9)	F (370.5)
NC-73/SR-2693 (Davidson-Concord Road)	F (168.1)	F (345.3)	F (96.0)	F (443.8)

(Delay in sec)

~ Delay is too high for Synchro to calculate

\* Includes installation of a traffic signal

The operational analysis results for the Build condition are discussed in **Section 3.3**.

### 1.3.5 Safety and Crash Data

A total of 292 crashes were reported along NC-73 (from I-77 to SR-2693 (Davidson-Concord Road) between August 1, 2003 – July 31, 2006 (see **Appendix A**). Of these crashes, there were no fatalities. Rear end crashes and frontal impact crashes comprised 53 percent and 31 percent of the overall crashes, respectively. Intersections identified as high crash areas include:

- **US-21 (Statesville Road)** – There were 41 crashes reported at this signalized intersection. Rear end crashes were the predominant type of crashes, with 73 percent of the overall crashes. Frontal impact crashes accounted for 12 percent, and sideswipe same side crashes accounted for seven percent of overall crashes. Congestion and drivers' failure to reduce speed were the primary causes of the rear end type crashes. The crash reports also revealed that heavy left turning traffic volume did not allow the vehicles exiting from I-77 northbound to merge safely into the exclusive left turn lane, causing the sideswipe same side type crashes.
- **Holly Point Road** – This existing two-way stop controlled intersection had 37 crash incidents during the three year period. Frontal impact crashes and rear end crashes accounted for the majority of crashes at 51 percent and 27 percent, respectively. The majority of the crashes occurred due to drivers' failure to yield for traffic.
- **NC-115 (Old Statesville Road)** – There were 22 reported crashes at this existing signalized intersection. Frontal impact crashes accounted for 64 percent and rear end crashes accounted for 27 percent of overall crashes.

There was one pedestrian crash reported during the three year study period.

## 1.4 Purpose of the Proposed Action

Traffic congestion on the NC-73 corridor is a daily occurrence with start-and-stop traffic conditions that cause unpredictable delays, resulting in increased travel time for commuters and travelers. Traffic congestion currently experienced by commuters along the corridor will continue to intensify through the year 2030. As described in **Section 1.3.4.2**, congestion is high, with approximately three-

quarters of the intersections currently operating at an unacceptable LOS (E or F) during peak hour. All of the intersections in the study area are expected to operate at LOS F by 2030.

The purpose of the proposed action is based on the local and state planning goals described previously (**Sections 1.3.2** and **1.3.3**) and the demonstrated need to address existing and projected roadway capacity deficiencies in the study area.

The primary purpose of the NC-73 project is to improve commuter mobility and reduce congestion, particularly during peak periods. Another desirable outcome of this project is to enhance the overall safety of the corridor.

## **2. ALTERNATIVES**

### **2.1 NO-BUILD OPTION**

No improvements would be made to NC-73 under the No-Build option, and the facility's capacity to accommodate existing and future capacity would remain unchanged.

The No-Build alternative was eliminated from further consideration because it is not consistent with local and state planning objectives to reduce traffic congestion and mobility along the NC-73 corridor. Based on projected 2030 traffic demand, the No-Build Alternative will not reduce traffic congestion. This alternative is not consistent with and does not meet the project purpose and need, but was retained as a baseline for applicable comparison and evaluation.

### **2.2 ALTERNATIVES ELIMINATED**

**Transportation Systems Management (TSM) Alternative.** The TSM Alternative includes minor physical and operational enhancements in order to improve performance and safety, and to enhance traffic operations. Examples of TSM include signal retiming, installing new signals, adding medians or turn lanes, and other minor measures to improve traffic flow. Typically, the TSM alternative is used to reduce impacts on the environment, to speed implementation, and to reduce costs. Though elements of TSM will be incorporated, sole use of TSM techniques would not meet the project purpose and need.

**Transit Alternative.** The Charlotte Area Transit System (CATS) operates more than 70 regular and express bus routes within Mecklenburg County. CATS' Express Routes 77X and 48X both provide service to the interchange and NC-73/US-21 intersection area. Route 99 is a Village Rider route within the project corridor along NC-73 that runs from the western project limits to the NC-115 intersection where it follows NC-115 south, eventually terminating back at the US-21/Gilead Road intersection. Two Park and Ride stops are located in proximity to US-21. The existing CATS bus routes play a role in alleviating congestion, but as evidenced by existing traffic volumes, service on local bus routes has not been enough to fully address and alleviate traffic congestion along the NC-73 corridor.

An increase in bus transit would have minimal effect on traffic volumes on NC-73. Increasing transit service would have benefits through providing additional commuting options. However, improved bus service and additional transit riders would still likely represent a small fraction of all commuter trips. The existing (2006) traffic on the facility is approximately 9,200 – 27,400 vehicles per day, with projected (2030) traffic further diminishing the corridor's ability to function at acceptable levels of service. Therefore, this alternative would not meet the purpose of improving mobility for commuters, nor would it meet the purpose of reducing congestion on NC-73. For these reasons, this alternative was not carried forward for detailed study.

The Town of Huntersville and surrounding communities do not currently offer a mass transit system to service the local area. Expansion of the existing CATS transit system will include a north corridor commuter rail line that will service northern Mecklenburg County, including Huntersville. The CATS is considering a transit stop at the NC-115/NC-73 intersection for the North Corridor Commuter Rail project within the project area. The North Corridor line is currently not funded.

A commuter rail system alone would not accommodate the projected increase in demand along this corridor. In addition, rail users would still utilize NC-73 to get to the park-and-ride lot/station

proposed in the area. Therefore, while a rail system would have benefits, it would not meet the purpose of the proposed project. For this reason, the Mass Transit Alternative was eliminated from further consideration.

## **2.3 BUILD ALTERNATIVES**

Although a six-lane roadway would provide maximum mobility benefits, all intersections, with the exception of US-21, would operate at acceptable levels of service using a four-lane roadway. A four-lane roadway was established as the most feasible option for this project. Alternative scenarios for widening NC-73 (Sam Furr Road) included symmetrical widening, widening to the north, widening to the south, and a combination of asymmetrical widening to the north and south. Several widening scenario combinations were examined. The existing roadway was built in the center of the existing right of way. Therefore, symmetrical widening would result in a logical utilization of the existing right of way. However, this concept was rejected as an alternative for the project overall because the existing roadbed would not be used and because of the challenges of maintaining traffic during construction.

Widening totally to the north or to the south of existing NC-73 would preserve the existing roadbed, but limits the flexibility to minimize adverse impacts. A combination of north-side and south-side widening provides an opportunity to minimize impacts while making the best use of the existing roadbed. The combination with the least impacts was recommended as the preferred alternative, utilizing symmetrical widening from US-21 to approximately 1,700 feet west of NC-115. From west of NC-115 to about 1,500 feet east of SR-2430 (Westmoreland Road) widening is proposed on the north side of the existing roadbed. South-wide widening is proposed from east of SR-2430 to about 1,000 feet west of SR- 2693 and north-side widening is proposed for the remainder of the project.

The recommended alternative identified in the 1993 CE was evaluated to determine if it is a viable option. The evaluation included field assessments, a review of aerial photography and environmental features, a review of engineering factors, and coordination with local, state, and federal agencies. A combination of north-side and south-side widening was evaluated, shifting the alignment where necessary to avoid sensitive natural and human environment features.

Alternatives were evaluated based on their ability to meet the purpose and need with minimal environmental impact. Alternatives carried forward for detailed study are the No-Build Alternative and a Build Alternative that involves widening the existing highway via a combination of north and south options that would have the least impacts to the human and natural environments and a quadrant roadway intersection for the Holly Point Drive area.

### 3. PREFERRED ALTERNATIVE

The Preferred Alternative is shown in **Appendix B**. The following sections summarize the designs and traffic operations for the Preferred Alternative.

#### 3.1 Preferred Alternative Description

The NCDOT proposes to widen the existing two-lane facility to multi-lanes. The project includes the following improvements:

**Section AA.** Beginning west of US-21 (Statesville Road), the preferred alignment follows the existing NC-73 alignment, with symmetrical widening to both sides. Just west of the NC-115 intersection, the proposed alignment shifts to the north to avoid impacts to a power substation located on the south side of NC-73. The alignment remains north of existing NC-73 until improvements taper to existing, about 2300 feet east of NC-115.

To further improve roadway operations, elements of TSM have been incorporated into the preferred alternative. For example, signals and turn lanes are included for a few prominent intersections. Signals would be provided at the US-21/Holly Point Drive and NC-73/Holly Point Drive intersections.

**Holly Point Drive Quadrant-Left Roadway Intersection.** Congestion at the intersections of NC-73/Holly Point Drive and US-21/Holly Point Drive reaches critical levels during the peak a.m. and peak p.m. periods (**Table 3**). As originally designed, the capacity analysis demonstrated that by the year 2030 under a conventional intersection concept (that includes multiple through-lanes, dual left turn lanes and exclusive right turn lanes on all four legs) commuters would still experience considerable delay through the intersection of NC-73 and US-21. Furthermore, access to development adjacent to NC-73 would be restricted severely.

The Town and the NCDOT developed a quadrant roadway concept for the Holly Point Drive area. **Figure 3** depicts the proposed quadrant intersection operations and how the NC-73 eastbound and westbound left-turn lanes to US-21 would be removed. The capacity analysis documented in the *Traffic Analysis Report* (March 2009) demonstrated that the proposed concept would substantially reduce overall congestion and delay at the intersection when compared against the conventional approach.

As shown in **Figure 3**, eastbound and westbound left turn movements at the intersection of NC-73 and US-21 would be restricted, with vehicles needing to make these turning movements using the quadrant roadway. Holly Point Drive would be widened and traffic signals installed at the intersections of NC-73/Holly Point Drive and US-21/Holly Point Drive. The quadrant roadway is anticipated to decrease delays at these intersections. Based upon traffic analyses conducted for this alternative, this type of intersection provides considerable improvement to a conventional intersection, including:

- Less delays to the overall operation of the NC-73 and US-21 intersection.
- Improvement at the intersection of NC-73 and Rich Hatchett Drive.
- Allows for direct access from NC-73 eastbound to the Northcross shopping center on the north side of NC-73 opposite of Holly Point Drive and westbound to the businesses along Holly Point Drive south of NC-73.

**Section AB.** In the beginning of this segment, the roadway would be widened mostly on the north side to avoid impacts to a jurisdictional stream channel located along the south side of NC-73. From just east of SR-2147 (Westmoreland Road), the widening shifts to the south in order to avoid a residence, then shifts back north at Page's Pond Court. Then, the roadway is widened to the north for the remainder of the project (all the way to Davidson-Concord).

### 3.2 Design Year Traffic Volumes (2030)

As shown on the mapping in **Appendix B**, the projected traffic volumes along NC-73 range from 18,700 vpd to 55,700 vpd in 2030. On Holly Point Drive, projected traffic volumes are 14,400 vpd.

### 3.3 Operational Analysis

An operational analysis was performed to determine the level of service for 2030 Build projected traffic on NC-73. **Tables 4** and **5** show the results of operational analysis for 2030 design year traffic on NC-73.

**Arterial Level of Service.** In a comparison of **Table 4** to **Table 1**, the Build scenario improves the levels of service in both directions. The eastbound direction improves from LOS F to LOS C. The westbound direction improves from LOS F to LOS D.

**Table 4.** Build (2030) Roadway Segments Levels of Service

Roadway Segment	2030 Build	
	EB	WB
I-77 to US-21	F	F
US-21 to Holly Point Drive	D	D
Holly Point Drive to Rich Hatchett Road	F	D
Rich Hatchett Road to NC-115	D	B
NC-115 to Davidson-Concord Road	A	C
<b>Total*</b>	C	D

\*Total overall calculated LOS for entire corridor.

**Intersections.** The Preferred Alternative will decrease delay at all intersections. Future levels of service are shown in **Table 5** for the intersections listed in **Section 1.3.4.2**.

**Table 5.** Build (2030) Intersection Levels of Service

Intersection	AM Peak Hour	PM Peak Hour
NC-73 and US-21	D (45.5)	E (76.6)
NC-73/Holly Point Drive*	B (12.7)	C (22.4)
US-21/Holly Point Drive*	B (16.2)	B (18.3)
NC-73/Rich Hatchett Road	D (45.5)	E (78.3)
NC-73/NC-115	E (67.0)	E (68.8)
NC-73/SR-2693 (Davidson-Concord Road)	C (27.8)	C (33.2)

(Delay in sec)

\* Includes installation of a traffic signal

### **3.4 Right-of-Way and Typical Sections**

The existing right-of-way along NC-73 heading east from I-77 is 130 feet to a point approximately 200 feet east of Holly Point Drive where it reduces to 100 feet. The right-of-way remains at 100 feet, with the existing roadway in the center, to beyond the eastern project terminus.

The current lane configuration along NC-73 is primarily a two-lane, undivided section. Existing pavement width is 24 feet, with one lane in each direction, and 10-foot shoulders on each side of the roadway. The exception is in the vicinity of the NC-73/US-21 intersection. The westbound NC-73 approach to US-21 transitions from a single lane to a left-turn lane, two through-lanes, and a right-turn lane approximately 900 feet east of the intersection. The eastbound NC-73 approach to US-21 includes a left-turn lane and two through-lanes. The eastbound outside through-lane continues through the intersection approximately 650 feet and drops as a right-turn lane onto Holly Point Drive. Left-turn lanes exist at the major signalized intersections as well as several non-signalized roadway intersections that primarily serve residential subdivisions.

The proposed typical section varies for Sections AA and AB. As shown in **Figure 2**, section AA of NC-73 is proposed as an urban typical section, consisting of four lanes separated by a raised, landscaped median that varies between 23 and 30 feet. The inside through-lanes will measure 12 feet in width and the outside lanes will measure 14 feet to be shared with bicyclists. The total construction width is between 100 and 300 feet and would require an estimated 120- to 160- foot of additional right-of-way width. Concrete 2.5-foot curb and gutter, 6-foot (maximum) concrete sidewalks, and planting strips are proposed along both sides of NC-73.

**Figure 2** depicts the proposed typical section for Section AB, which begins approximately 2,300 feet east of NC-115 to SR-2693. The proposed typical section consists of through lanes (two in each direction) separated by median that varies between zero and 46 feet. Shoulders will be 6 feet wide (2-foot paved) in the median and 10 feet wide (4-feet paved) on the outside. The total construction width is between 200 and 300 feet and would require an estimated 200-foot of additional wide right-of-way.

### **3.5 Access Control, Intersections and Signalization**

All intersections along NC-73 within the project limits are at-grade with stop-sign control except for US-21, SR-2434 (Rich Hatchett Road), NC-115, and SR-2693 (Davidson-Concord Road), which are signalized. NS has a single track that intersects NC-73 at-grade approximately 275 feet east of NC-115. The crossing is protected by warning devices including cross-bucks and overhead flashing lights.

Control of access exists from the north bound I-77 ramps to the west side of US-21. Access control measures are being proposed as part of this project in order to decrease the number of conflict points. One such control measure is the construction of a median throughout the project. The median will serve as a barrier and limit turning movements. This treatment limits access to “right in–right out” movements from the intersecting streets and drives. Access points, including the location of median crossovers will be determined during final design based on NCDOT and AASHTO design guidelines and standards.

All intersections would remain at-grade with stop sign control except as follows:

- NC-73 and US-21 – modify traffic signal; remove eastbound and westbound dual left-turn lanes; add an eastbound and westbound through-lane; modify the northbound exclusive right-turn lane to be a through-right lane

- NC-73 and Holly Point Drive – two phase traffic signal planned; add dual left-turn lanes add from westbound NC-73 onto Holly Point Drive; add exclusive left-turn lane on eastbound NC-73; all traffic from Holly Point will be directed eastbound on NC-73
- US-21 and Holly Point Drive – two phase traffic signal planned; add dual rights and a through-left lane on Holly Point Drive; all traffic from the business drive across from Holly Point will be directed southbound on US-21
- NC-115 – modify traffic signal; add dual left-turn lanes and exclusive right-turn lanes on all approaches, and

### **3.6 Roadway Classification and Speed Limits**

Design criteria for the proposed project is based on a 50 mph design speed (45 mph posted speed) from US-21 to NC-115, and a 60 mph design speed (55 mph posted speed) from NC-115 to SR-2693 (Davidson-Concord Road). Design speeds were developed in accordance with the NCDOT and AASHTO design guidelines and standards.

NC-73 is classified as a North Carolina Strategic Highway Corridor (SHC) by the NCDOT and as a Principal Arterial by the Mecklenburg-Union Metropolitan Planning Organization (MUMPO). NC-73 is designed based on a “Boulevard” facility with a 45 mile per hour (mph) design speed and will be posted at 45 mph.

The proposed posted speed limit along Holly Point Drive is 30 mph.

### **3.7 Structures and Drainage Requirements**

A *Preliminary Hydraulics Study* (January 2007) was prepared for the project. The report is incorporated by reference. The project would not have any substantial adverse impact on the existing floodplain or on the associated flood hazard to the adjacent properties. No floodway modification will be required.

An *Updated Preliminary Hydraulics Study for NC-73 Improvements* (December 2008) was prepared for the Holly Point Drive area. A review of the Quadrangle Map and Flood Insurance Rate Map, and a site visit conducted on December 29, 2008, revealed no additional impacts to those documented in the *Preliminary Hydraulics Study*. The Holly Point Drive area is located near the upper end of the watershed boundary and there is not a regulated floodplain or a stream crossing along Holly Point Drive.

### **3.8 Bicycle and Pedestrian Provisions**

The Town developed plans (see **Section 4.2**) that promote expansion of bicycle and pedestrian routes. In an effort to design a corridor that supports the Town’s vision for a multimodal facility, the Town and the NCDOT collaborated throughout the project development process regarding bicycle and pedestrian accommodations.

As seen in **Figure 2**, Section AA of the project includes provisions for wider outside lanes to allow safe passage for bicyclists. Shared bicycle provisions include 14-foot lanes in curb and gutter sections. The current proposed design includes 6-foot concrete sidewalks separated by planting strip along both sides of NC-73 (Sam Furr Road). Section AB does not include pedestrian provisions.

### **3.9 Cost Estimates and Project Staging**

As shown in **Table 6**, the total estimated cost for the project is \$57.8 million. This cost includes estimates of construction cost (\$31 million), right-of-way cost (\$23.5 million), and utility costs (\$3.3 million).

The schedule for construction of NC-73 improvements includes right-of-way acquisition and construction to begin by late 2009. The widening of Section AB currently remains unfunded.

**Table 6.** R-2632 Preliminary Cost Estimate

<b>Phase</b>	<b>Section AA</b>	<b>Section AB</b>	<b>Total Estimate</b>
Right-of-Way	\$17,500,000*	\$6,000,000	\$23,500,000
Utilities	\$1,500,000*	\$1,800,000	\$3,300,000
Construction	\$14,800,000*	\$16,200,000	\$31,000,000
		<b>Total Cost:</b>	<b>\$57,800,000</b>

\*Costs for this section will be refined during Design.

## 4. AFFECTED ENVIRONMENT

This section summarizes baseline conditions and trends of the human/social, physical, and natural environments in the area. The identification of the existing affected environment serves as the baseline from which to determine project impacts.

### 4.1 Human Environment

The human environment is described in the *Community Impact Assessment (CIA)* (May 2007). The following sections describe community characteristics, including demographic information for the study area defined in the CIA, as well as community resources in the area.

#### 4.1.1 Project Setting

The NC-73 widening project is located in northern Mecklenburg County, North Carolina primarily within the Town of Huntersville. The eastern limits of the project area are located within Huntersville's Extra Territorial Jurisdiction. Huntersville is located approximately 14 miles north of Charlotte, which is the County seat and largest city in North Carolina. Huntersville is one of three small towns that comprise northern Mecklenburg County. It is generally bound by Charlotte to the south, the town of Cornelius to the north, Lincoln and Gaston Counties to the west, and Cabarrus County/City of Concord to the east.

Huntersville was incorporated in 1873, and was historically an agricultural community, relying primarily on cotton farming. The agricultural mainstay, coupled with a rail line, promoted quick growth, to include the addition of numerous textile mills over the years. Today, the Huntersville area continues to attract many people due to its remaining farmland, close proximity to Charlotte, self-contained amenities, and easy access to Lake Norman, a major recreational area.

#### 4.1.2 Community Characteristics

**Population/Housing.** The State, County, Town of Huntersville, and the study area all experienced growth between 1990 and 2000. The County population increased over 36 percent during that decade, Huntersville's population increased by 728 percent, and the study area population by nearly 60 percent (US Census Bureau, 2000). These increases all were substantially higher than the State's increase of about 21 percent. The substantial population growth in the Town and the study area can be attributed to its suburban yet quaint appeal within the Charlotte metro area.

As expected, the number of housing units in the study area increased between 1990 and 2000. The increase in housing units during that decade was nearly 75 percent. In 2000, approximately three-quarters of housing units within the study area were owner-occupied.

**Race/Ethnicity.** Whites, Blacks, and Hispanics are the three largest racial/ethnic groups within the study area. The study area is less diverse than the County and State, with nearly 90 percent Whites, about nine percent black, and four percent Hispanic. Mecklenburg County is about 64 percent white, 28 percent black, six percent Hispanic/Latino, three percent Asian, and less than one percent other.

**Income and Poverty Status.** Overall, median household income is higher for the Town (\$71,932) and the study area (about \$70,000) than for the State (\$40,729) and County (\$50,579). As expected, the poverty rate is low within the study area, which contains census tracts that exhibit high median household incomes. A relatively low percentage (five percent) of the study area lives below the poverty level (1999).

**Business and Employment.** Table 7 provides employment information by supersector or domain for industries in North Carolina, Mecklenburg County, and the Charlotte-Gastonia-Concord Metropolitan Statistical Area (MSA). In 1990 and 2007, the highest percentage of Goods-Producing Domain for the State and County was Manufacturing. In 1990, the highest percentage of Service-Producing Domain for the State and for Mecklenburg County was Trade/Transportation/Utilities. In 2007, the highest percentage of Service-Producing Domain for Mecklenburg County and the MSA remained Trade/Transportation/Utilities. However, the highest percentage of Service-Producing Domain for the State changed to Education and Health Services.

Between 1990 and 2007, the percentage of Manufacturing for the State and County decreased. However, the other two Goods-Producing Domains (Natural Resources/Mining and Construction) slightly increased for the State and County during the seventeen-year period.

Between 1990 and 2007, the percentage of Service-Producing Domains varied. However, the percentage of employment in Financial Activities and Leisure and Hospitality increased slightly whereas the percentage of Education and Health Services increased dramatically. During the same period, the percentage of employment within the government sector increased while those in the private sector decreased.

**Table 7.** Annual Employment Distribution – 1990 and 2007

Employment Industry	1990 - Percent of Workforce			2007 – Percent of Workforce		
	North Carolina	Meck County	Charlotte-Gastonia-Concord MSA	North Carolina	Meck County	Charlotte-Gastonia-Concord MSA
<b>Goods-Producing Domain</b>						
Natural Resources/Mining	0.8	0.1	0.4	0.8	.2	0.3
Construction	5.4	6.1	6.0	6.3	6.4	7.0
Manufacturing	26.6	13.2	22.8	13.2	6.1	9.3
<b>Service-Providing Domain</b>						
Trade/Transportation/Utilities	21.1	27.8	24.8	19.9	22.8	22.0
Information	1.9	3.9	3.0	1.8	3.4	2.7
Financial Activities	4.4	8.7	6.8	5.1	11.4	9.0
Professional/Business	7.7	14.1	10.7	12.4	19.1	16.2
Education and Health	16.1	12.0	12.3	22.1	14.7	16.8
Leisure and Hospitality	7.7	7.7	7.0	9.8	9.9	9.9
Other Services	2.6	3.1	2.9	2.6	2.9	2.8
Public Administration	5.6	3.2	3.3	5.6	2.7	3.3
Unclassified	0	0	0	.4	.5	0.4
<b>Total Government Sector</b>	15.5	10.1	10.7	16.6	10.8	12.4
<b>Total Private Sector</b>	84.5	89.9	89.3	83.4	89.2	87.6

Source: North Carolina Employment Security Commission.

Notes: Employment numbers are Annual Average Employment for aggregate of all types by Super sector or Domain. Year 2007 most recent year in which annual data available.

MSA – Metropolitan Statistical Area

NC-73 is easily accessed from I-77 and is a major thoroughfare within the Town of Huntersville. The Northcross Shopping Center, located on the north side of NC-73 near the US-21 intersection, is a major shopping center that houses over 40 retailers and restaurants. The commercial area around US-21 is largely auto-dependent and is a major traffic generator. On the south side of NC-73, sits the Northcross Professional Park, which contains banking facilities, doctors' offices, and other professional services.

#### **4.1.3 Community Resources and Services**

The location of community resources discussed in this section is shown in **Figure 4**. Community resources information was obtained from the Mecklenburg County GIS Department, ADC Map Book, and field reviews.

As expected, the number of community facilities decreases outward from urban centers. Community facilities inventoried include:

- Churches
- Schools and Colleges
- Parks/Recreation
- Libraries/Community Centers
- Hospitals and Medical facilities/Health centers
- Emergency Service Centers (fire/medic and police stations)
- Bike/Pedestrian and Greenway Routes
- Public Transit Routes

**Churches.** As seen in **Figure 4**, there are numerous churches in the area, including Tri-City Baptist Church, which is located at 12200 Sam Furr Road in Section AB.

**Schools and Colleges.** The proposed project is located within the Charlotte-Mecklenburg School (CMS) District. As seen on **Figure 4**, there are several education institutions located within the area. These schools, which serve students residing within the municipal areas of Huntersville, Cornelius, and Davidson, include:

- Cornelius ES
- Huntersville ES
- Bailey MS
- Davidson ES
- Davidson I.B. MS

No public schools are located directly within the project corridor. The Huntington Learning Center is located on Holly Point Drive and provides tutoring services and SAT/PSAT preparatory classes for students in kindergarten through twelfth grade. The Huntington Learning center has approximately 75 students currently enrolled. Another facility, Phoenix Montessori Academy, is an independent non-profit school located approximately 0.4 miles north of the NC-73/NC-115 intersection. This facility provides toddler, primary, lower elementary, upper elementary, and middle school classes for more than 100 students ages Toddler through 9th grade. Playwise Preschool Academy is located across from Northcross Shopping Center on NC-73. Playwise Preschool Academy offers preschool, pre-k, and transitional kindergarten programs for up to 30 children ages 3-5 years old (<http://huntersville.huntingtonlearning.com/>, <http://www.phoenixmontessori.org/>, [http://www.playwisepreschool.com/Playwise\\_Preschool/Welcome.html](http://www.playwisepreschool.com/Playwise_Preschool/Welcome.html)).

There are approximately 96 school buses that currently utilize NC-73 throughout the day, including 62 in the morning and 34 in the afternoon. These buses currently serve the following schools (CMS, Personal Communication, March 9, 2009):

- North Mecklenburg HS
- Blythe ES
- Alexander MS
- Huntersville ES
- J.V. Washam ES
- Bailey MS
- Davidson ES
- Torrence Creek ES
- Smith Language Academy
- Turning Point Academy
- Berry Technical HS
- Performance Learning Center
- Villa Heights
- Davidson I.B. MS

**Parks/Recreation.** As seen in **Figure 4**, the area contains parks and recreational facilities. North Mecklenburg Park, a district park offering active and passive recreational opportunities, is located on NC-115, approximately 0.5 mile south of the NC-115/NC-73 intersection. The Robert Caldwell Bradford District Park is located east of the intersection of Ramah Church Road and NC-73.

**Libraries/Community Centers.** North County Regional Library is located off of Holly Point Drive on Holly Crest Lane. This library serves northern Mecklenburg County, including the towns of Huntersville, Cornelius and Davidson.

**Hospitals and Emergency Service Centers (Fire/Medic/Police Stations).** The project corridor is located in the Huntersville fire district and is serviced by the Huntersville Volunteer Fire Department. The fire station is located on NC-115 (Old Statesville Road), approximately two miles south of the NC-73/NC-115 intersection.

Presbyterian Hospital Huntersville and Lake Norman Regional Medical Center (LNRMC) are the primary hospitals serving the project area. Neither hospital is located within the project corridor. Presbyterian Hospital is located approximately 2.5 miles southwest of the western limits of the project corridor, and LNRMC is located in Iredell County, approximately 13 miles north of the project corridor. Private medical offices are located along Holly Point Drive.

**Bike/Pedestrian Routes and Greenways.** Sidewalks are located intermittently along the project corridor between US-21 and Ranger Trail. No sidewalk is present between Ranger Trail and the end of the project. As discussed in **Section 3.8**, the project will be designed to accommodate bicycles and sidewalks from west of US-21 to NC-115.

Portions of NC-73 are designated as part of NC Bike Route 6, also called the Piedmont Spur. Bike Route 6 begins in Morganton and offers an alternate to the Piedmont portion of NC Bike Route 2, the Mountains to the Sea route ([http://www.ncdot.org/transit/bicycle/maps/maps\\_highways.html](http://www.ncdot.org/transit/bicycle/maps/maps_highways.html)). The project limits do not include NC Bike Route 6. In North Mecklenburg the route follows SR 2136 (Gilead Road) south of NC-73 (see **Figure 4**).

The Mecklenburg County Parks and Recreation (MCPR) department is building greenway trails throughout the county. A future greenway trail is proposed in Huntersville that will be located along the west side of McDowell Creek, between Westmoreland Road and NC-73. The portion of NC-73 that will be incorporated into the greenway project is located west of I-77, outside of the project area. <http://www.charmeck.org/Departments/Park+and+Rec/Greenways/Home.htm/>.

**Public Transit Routes.** The CATS operates more than 70 regular and express bus routes within Mecklenburg County. The NC-73 corridor is utilized for the Village Rider, which serves North Mecklenburg (Huntersville, Cornelius, and Davidson). The routes of the Village Rider, including Route 99, meet at the North County Regional Library. Route 99 travels along the project corridor along NC-73 from the western project limit to the NC-115 intersection where it follows NC-115 south eventually terminating back at the US-21/Gilead Road intersection (see **Figure 5**). (<http://www.charmeck.org/Departments/CATS/Riding+CATS/N+Meck+Village+Rider.htm>).

A layover is located on Holly Point Drive in front of the library. The stop includes shelter where Village Rider bus drivers “re-sync” their schedules. As such, the library is used to support the users and drivers of the Village Riders.

## ***4.2 Existing Land Use and Zoning/Plans***

### ***4.2.1 Existing Land Use and Zoning***

NC-73 is easily accessed from I-77 and I-85 and is a major thoroughfare within the Town of Huntersville. The existing land use along the project corridor is a combination of residential subdivisions and commercial uses along the western portion of the project corridor, and scattered residential and commercial and undeveloped/farmland along the eastern portion of the project corridor.

Zoning along the corridor varies from high density commercial to rural. From US-21 to NC-115 the zoning is Highway Commercial, General Residential and Neighborhood Residential. The majority of this zoning is centered around the NC- 73/US-21 intersection extending east to the NC-73/Rich Hatchett Road intersection with a small portion on the west side of the NC-73/NC-115 intersection as well. The remaining area in this segment is zoned General Residential with an area of Neighborhood Residential near the NC-73/NC- 115 intersection.

From NC-115 to Davidson-Concord Road the land use varies. Beginning at NC-115 the zoning includes Corporate Business and Special Purpose. These land uses house facilities for commercial businesses and light industrial parks, with Special Purpose specifically for businesses that may have adverse affects on the environment surrounding them.

Traveling east the land use then changes to Transitional Residential, which serves as a buffer between urbanized developments and rural areas. There is also a small portion of General Residential zoning within this area. The zoning changes to Rural in the area surrounding the NC-73/Davidson-Concord Road intersection.

### ***4.2.2 Plans***

**NC-73 Transportation/Land Use Corridor Plan (Adopted July 19, 2004).** This document was a combined effort between NCDOT and the surrounding municipalities which lays the groundwork for maintaining NC-73 (Sam Furr Road) as a Strategic Highway Corridor. The *NC-73 Transportation/Land Use Corridor Plan* spans the area between Lincolnton and I-85.

The plan addresses needed roadway improvements along NC-73 as well as recommended access management techniques. The plan recommends a median divided facility with curb and gutter, sidewalks, and bicycle lanes from US-21 to NC-115. From NC-115 to the project terminus, the plan recommends a median divided facility with bicycle lanes and grass shoulders.

**NC-73 (Sam Furr Rd)/US-21 Transportation and Land Use Vision Small Area Plan (Approved December 5, 2005).** This small area plan is a result of a recommendation from the *NC-73 Transportation/Land Use Corridor Plan* to further study the area surrounding the intersection of US-21 (Statesville Road) and NC-73 (Sam Furr Road), which is heavily developed. It is envisioned that this area would transition from a suburban commercial area to an urban mixed-use area that is friendly to pedestrians and bicyclists while efficiently moving vehicular traffic. The plan promotes new links, bridges and greenways as well as other access management techniques to relieve congestion on NC-73 and US-21.

**NC-73 (Sam Furr Road) Small Area Land Use and Economic Development Plan (Adopted June 19, 2006).** The concepts presented in the *NC-73 (Sam Furr Road) Small Area Land Use and Economic Development Plan* are complementary and consistent with the goals set forth in other respective plans for the NC-73 corridor. This plan builds upon the fundamentals of the *NC-73 Transportation/Land Use Corridor Plan*.

A key finding of the plan was the desire to promote the positive impacts of growth and vitality along the NC-73 corridor while maintaining the rural character and “branding” opportunities associated with the downtown areas of Davidson, Huntersville and Cornelius.

**Neighborhood Plan for the Rich Hatchett Road Community (Approved August 17, 1998).** This plan was prepared by the small established African-American community that was settled over a century ago along Rich Hatchett Road. This community consists of about ten homes along Rich Hatchett Road. The *Neighborhood Plan for the Rich Hatchett Road Community* is a long-range plan that outlines a strategy to maintain the residential character of the area while guiding the development of surrounding area. In particular, the plan sets forth guidelines on building height and type of businesses in order to minimize lighting and noise impacts.

**Charlotte Area Transit System (CATS) North Corridor.** The proposed North Corridor Commuter Rail Project will operate along 30 miles of the existing Norfolk Southern rail line (the "O" line) from Center City Charlotte to Mooresville in southern Iredell County. The alignment parallels Graham Street in the south and NC-115 in the north including a portion of the project area. One of the 12 potential stations is the Sam Furr Road Station, which would be located at the intersection of NC-115 and Mayes Road. This project is currently unfunded.

**Charlotte-Mecklenburg Bicycle Transportation Plan (Adopted in 1999).** This plan calls for bicycle accommodation on all new or reconstructed thoroughfares. In this plan, accommodations are recommended as wide outside lanes for NC-73.

**Town of Huntersville Greenway and Bikeway Master Plan (Effective September January 2009).** This plan recommends a sidepath on NC-73 from US-21 to NC-115, and shoulder accommodation on NC-73 east of NC-115.

#### **4.2.3 Other Activities**

Other activities that may affect the project study area are described below, including projects and/or activities in various stages of planning and development.

**I-4750.** This project is included in the *NCDOT 2009-2015 Statewide Transportation Improvement Program*, and consists of widening I-77 from NC-73 to I-40. This project has funding for right-of-way acquisition in 2014 and 2015, but the remainder of this project is currently unfunded.

**I-77/NC-73 Interchange Study.** A technical team was created to develop a preferred roadway plan for the I-77/NC-73 interchange area. The purpose of this study is to develop improvement alternatives for the highway network within a mile of I-77 including US-21 to the east and one interchange north and south of the I-77/NC- 73 interchange. Several concepts are being developed, and the completion date for this study is scheduled for fall 2009.

**Development Projects.** According to the Town, there currently is little development activity underway or planned along the NC-73 corridor. Much of the area around Section AA is already developed with single-family homes. Section AB contains vacant/developable land.

Augustalee is a planned mixed-use development off of I-77 at Westmoreland Road in south Cornelius. Various modifications to I-77 and surrounding roadways in Cornelius and Huntersville are proposed in conjunction with the Augustalee project. In April 2009, several transportation improvements were added to the MUMPO's thoroughfare plan, including constructing a new Exit 27 interchange at I-77 and SR-2147 (Westmoreland Road), widening US-21 (Statesville Road), building a bridge from the Bailey Road curve across I-77 (connecting with Northcross Drive Extension), widening Westmoreland Road, and construction of Northcross Drive from Jim Cooke Road to Westmoreland Road.

(<http://www.augustalee.com/pdfs/MUMPOApprovesAugustaleeTransportationPlans.pdf>).

### **4.3 Physical Environment**

#### **4.3.1 Floodplains and Floodways**

Floodplain and floodway protection is required under several federal, state, and local laws, including Executive Order 11988, entitled "Floodplain Management," which requires federal agencies to avoid making modifications to and supporting development in floodplains wherever practical. As floodplains provide beneficial value such as control or containment of flood waters and provision of wildlife habitat, agencies are required to take actions that reduce the risk of flood loss and impacts.

Mecklenburg County is a participant in the National Flood Insurance Regular Program administered by the Federal Emergency Management Agency (FEMA). Ramah Creek is included in a detailed flood study for Mecklenburg County and has a regulated 100-year floodplain and floodway with established base flood elevations. It is anticipated that this project will require approval of a Conditional Letter of Map Revision (CLOMR) and subsequent approval of a final Letter of Map Revision (LOMR) following project completion and acceptance by the NCDOT. The NCDOT Hydraulics Unit will coordinate with FEMA and local authorities to ensure compliance with applicable floodplain management ordinances.

#### **4.3.2 Utilities**

There are multiple utility services along the project corridor. Power, phone, natural gas, water/sewer, and CATV are all present along the NC-73 corridor and Holly Point Drive area. Anticipated utility relocations are discussed in **Section 5.6**.

#### **4.3.3 Hazardous Materials**

The *Environmental Impact Evaluation* (October 2006) and *Environmental Impact Evaluation Addendum* (November 2008) document the study and research of past and present waste-handling activities and the presence of underground storage tanks. This study included a review of selected reasonably ascertainable regulatory lists for permitted hazardous waste sites and readily available site

maps, aerial photographs, and topographic maps for indications of past uses of properties in the project area.

Based on the evaluations, two sites presently or formerly having underground storage tanks (USTs) were identified within the area: Sam's Mart Store and Sam's Mart Store 19. In addition, the following were identified as conditionally exempt small quantity hazardous waste generators (CESQG) during the database search: Portrait Innovations and Target Store. As defined by the Resource Conservation and Recovery Act (RCRA), conditionally exempt small quantity generators generate between 100 kg or less of hazardous waste per month.

#### **4.3.4 Air Quality**

The Clean Air Act (CAA) requires the EPA to set National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and the environment. Transportation sources are the main source of nationwide CO emissions, with the largest emissions contribution coming from highway motor vehicles. Automobiles are considered to be the major source of CO in the project area and can be analyzed with a project-level analysis.

The proposed project was analyzed for impacts to air quality resulting from motor vehicle exhaust. The *Air Quality Analysis Report* (April 2007) documents the method and conclusions for the analysis. **Section 5.9** includes a discussion of the analysis results.

#### **4.3.5 Noise**

A traffic noise impact analysis (*Highway Traffic Noise/Construction Noise Analysis*, June 2007 and March 2009) was conducted to determine the effect of traffic noise levels in the immediate project area. The study included an inventory of existing noise sensitive land uses and field survey of ambient noise levels in the area. It included a comparison of the predicted noise levels to the ambient noise levels to determine if traffic noise impacts can be expected from the proposed project.

**Table 8** indicates that most individuals in urbanized areas are exposed to fairly high noise levels from many sources as they go about their daily activities. The degree of disturbance or annoyance from unwanted sound depends essentially on three factors: the amount and nature of the intruding noise, the relationship between background noise and the intruding noise, and the type of activity occurring where the noise is heard.

**Table 8.** Examples of Common Sounds: A-weighted Sound Level in Decibels (dBA)

A-weighted	Overall Level	Noise Environment
120	Uncomfortably loud (32 times as loud as 70 dBA)	Military jet airplane takeoff at 50 feet.
100	Very loud (8 times as loud as 70 dBA)	Jet flyover at 1,000 feet. Locomotive pass-by at 100 feet.
80	Loud (2 times as loud as 70 dBA)	Propeller plane flyover at 1,000 feet. Diesel truck 40 mph at 50 feet.
70	Moderately loud	Freeway at 50 feet from pavement edge at 10 a.m. Vacuum cleaner (indoor).
60	Relatively quiet (1/2 as loud as 70 dBA)	Air condition unit at 100 feet. Dish washer at 10 feet (indoor).
50	Quiet (1/4 as loud as 70 dBA)	Large transformers. Small private office (indoor).
40	Very quiet (1/8 as loud as 70 dBA)	Birds calls. Lowest limit of urban ambient sound.
10	Extremely quiet	Just audible (1/64 as loud as 70 dBA)
0		Threshold of hearing.

Source: Federal Agency Review of Selected Airport Noise Analysis Issues, 1992; modified by The LBG, Inc., 2009.

Traffic noise is not constant, varying with each vehicle passing a point. Highway noise or traffic is usually a composite of noises from engine exhaust, drive train, and tire-roadway interaction. In an urban environment, noise is made up of two distinct parts, ambient or background noise (i.e. wind noise and distant traffic noise) and intermittent noise. Intermittent noise is louder than background noise. Transportation noise is an example of this type of noise, and is the reason environmental noise is analyzed statistically.

**Noise Impact Criteria.** A traffic noise impact analysis was conducted according to procedures set forth in the Federal Highway Administration's (FHWA) *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, 23 CFR Part 772, reissued as FHWA Policy and Guidance document dated June, 1995. As part of the FHWA procedures, the FHWA has established noise abatement criteria (NAC), which has been adopted by NCDOT in their *Traffic Noise Abatement Policy* (2004), based on the noise sensitivity of various land uses for motor vehicle noise on roadways constructed with federal funds (see **Table 9**). The North County Regional Library does not have any outdoor use areas, and was classified as FHWA Activity Category E, which defines an interior criterion noise level.

**Table 9.** Noise Abatement Criteria Hourly A-weighted Sound Levels in Decibels (dBA)

Activity Category	Leq(h)	Description of Activity Category
A (Exterior)	57	Tracts of land for which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, open spaces, or historic districts dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B (Exterior)	67	Picnic areas, recreation areas, playgrounds, active sports areas, and parks that is not included in Category A; and residences, motels, hotels, public meeting rooms, schools, churches, libraries and hospitals.
C (Exterior)	72	Developed lands, properties or activities not included in Categories A or B above.
D	—	Undeveloped lands.
E (Interior)	52	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

Source: 23 CFR Part 772.

**Ambient Noise Levels.** Noise measurements were taken in the vicinity of the project to determine ambient (existing) noise levels for the identified land uses. The purpose of these measurements was to quantify existing acoustic environment and provide a base for assessing the impact of noise level increases. Six ambient measurement sites were taken in the vicinity of the project to determine existing noise levels, as shown in **Table 10**. These sites were chosen for their proximity to the project area. The ambient measurement locations are shown by site number in **Appendix C**.

**Table 10.** Ambient  $L_{eq}$  Noise Levels

*Site	Location of Receptor/ Receptor Type	Linear Feet from Centerline of NC-73 (Sam Furr Road)					
		25	50	100	200	400	800
1	Willow Breeze Lane (Residence)	72.9	68.8	64.3	59.9	--	55.2
2	Sutters Run Lane (Residence)	72.1	66.4	61.0	56.4	50.8*	--
3	9726/9816 Sam Furr Road (Medical offices)	69.1	66.2	61.7	59.5	55.9	--
4	Knoxwood Road (Residence)	72.0	69.5	64.1	56.8	51.4	--
5	Raymer Funeral Home (Funeral Home)	69.5	65.7	61.5	57.2	54.2	--
6	North County Regional Library	50.4	--	--	--	--	--

\*Sites 1-5 taken for *Highway Traffic Noise Analysis* (May 2007); Site 6 was measured for supplemental *Highway Traffic Noise Analysis* (March 2009) approximately 12' from the back of the North County Regional Library building facing Holly Point Drive. This location is representative of the first floor of the library building, which is approximately 18' below the elevation of Holly Point Drive.

The existing roadway and traffic conditions were used with the most current traffic noise prediction model in order to calculate existing noise levels for comparison with noise levels actually measured.

Project-related highway traffic noise impacts are discussed in **Section 5.10**.

#### **4.4 Cultural Resources**

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's regulations for compliance with Section 106, codified as 36 CFR Part 800. Section 106 requires federal agencies to take into account the effect of their undertakings on properties included in or eligible for inclusion in the National Register of Historic Places.

##### **4.4.1 Historic Architecture**

The 1993 CE identified one historic property in the project's Area of Potential Effects (APE), the William Sloane Mayes House. This property was determined to be not eligible for the National Register of Historic Places. A NCDOT architectural historian conducted a new survey of the APE in April 2007 and identified five properties greater than 50 years of age in the APE. The Mayes House was one of the five properties.

Since the date of the survey, the project limits were altered and two of the five properties fell outside of the revised APE. These two properties were the Caldwell Station School and the Marcus and Nancy Caldwell House. Subsequently, a report that re-evaluated the Mayes House and noted that the APE had been altered was prepared and submitted to the State Historic Preservation Office (HPO) on April 27, 2007. The Mayes House was determined once again not eligible for the National Register.

On May 9, 2007, the HPO concurred with the findings of the report and agreed that there were no eligible properties within the APE (see **Appendix A**). However, the HPO noted that the Marcus and Nancy Caldwell House was very likely eligible for the National Register and requested a re-evaluation of the project if the projects limits were to shift.

##### **4.4.2 Archaeology**

Archaeological investigations were completed for Section AB in 2007. One previously unrecorded archaeological site, 31MK1082, was identified within the APE. In correspondence dated November 28, 2007 (see **Appendix A**), the HPO concurred that Site 31MK1082 is not eligible for the National Register of Historic Places (NRHP).

#### **4.5 Natural Environment**

Natural systems were inventoried in the *Natural Resources Technical Report (NRTR)* (March 2009). The NRTR documents the assessment of biological features within the project study area, including descriptions of wildlife, vegetation, protected species, water quality and wetlands; and documents preliminary determination of permit requirements. A summary of the findings from the study are discussed in the following sections.

##### **4.5.1 Regional Characteristics**

The proposed project is located in the Piedmont Physiographic Province. The Piedmont is characterized by broad, gently rolling interstream areas and by steeper slopes along the drainageways. No prominent hills stand out above the generally level uplands.

The project vicinity consists of broad areas of level to gently sloping terrain. Mecklenburg County is located in south-central North Carolina, adjacent to Union, Cabarrus, Iredell, Lincoln and Gaston Counties in North Carolina and adjacent to York and Lancaster Counties in South Carolina. The

Catawba River forms the western boundary of Mecklenburg County and drains approximately three quarters of the county. The eastern portion of Mecklenburg County is drained by tributaries to the Rocky River in the Yadkin River basin. Mecklenburg County is a highly urbanized county with a total area of 336,000 acres or 525 square miles and the City of Charlotte is the county seat. Mecklenburg County's largest waterway, the Catawba River, supplies most of the municipal and industrial water requirements, and flows south into York County, South Carolina.

Based on the review of the 1993 USGS Quadrangle Cornelius, elevations within the project study area range from a high of approximately 810 feet National Geodetic Vertical Datum (NGVD) near the NC-73 and NC-115 intersection, to a low of approximately 710 feet NGVD where NC-73 crosses over a tributary Ramah Creek. Surrounding properties in the project vicinity include undeveloped wooded areas with some recent clearings, agricultural fields, residential properties, and commercial properties. The I-77/NC-73 interchange is located approximately 1000 feet to the west of the project study area.

#### **4.5.2 Physiology and Soils**

The project vicinity consists of Piedmont soils that are typically underlain by predominantly clayey subsoil. According to the 1980 USDA Soil Survey of Mecklenburg County, the soils within the project study area include the following:

- Cecil sandy clay loam, 2 to 8 percent slopes, eroded (CeB2) – Not Hydric
- Cecil sandy clay loam, 8 to 15 percent slopes, eroded (CeD2) – Not Hydric
- Enon sandy loam, 2 to 8 percent slopes (EnB) – Not Hydric
- Enon sandy loam, 8 to 15 percent slopes (EnD) – Not Hydric
- Helena sandy loam, 2 to 8 percent slopes (HeB) – Hydric inclusions
- Monacan loam (MO) – Hydric inclusions
- Pacolet sandy loam, 15 to 25 percent slopes (PaE) – Not Hydric
- Vance sandy loam, 2 to 8 percent slopes (VaB) – Not Hydric
- Vance sandy loam, 8 to 15 percent slopes (VaD) – Not Hydric
- Wilkes loam, 4 to 8 percent slopes (WkB) – Not Hydric
- Wilkes loam, 8 to 15 percent slopes (WkD) – Not Hydric
- Wilkes loam, 15 to 25 percent slopes (WkE) – Not Hydric

The characteristics of these soils and their location along the corridor are described in more detail in the *NRTR* (March 2009).

#### **4.5.3 Water Resources**

The proposed project study area is located in two drainage basins. The western portion of the project study area is located within the Upper Catawba River Basin, which is referred to as the Santee River Basin by the USGS. The eastern portion of the project study area is located within the Rocky River basin, which is referred to as the Upper Pee Dee River Basin by the USGS. The drainage divide is located east of the intersection of NC-73 with NC-115. The Hydrologic Unit Code 8 (HUC8) for the Upper Catawba River Basin is 03050101 and the HUC8 for the Rocky River Basin is 03040105. Stream characteristics are presented in **Table 11**.

**Catawba River Subbasin.** Within the western portion of the project study area located in the Catawba River Subbasin 03-08-33, drainage is toward the south to Torrence Creek (Stream Index number 11-115-4) and toward the west to Caldwell Station Creek. An unnamed tributary to Torrence

Creek (designated as Stream A on **Figure 6a**) is located approximately 800 feet west of the NC-73 intersection with NC-115, and is the only jurisdictional stream within the project study area that is located in the Upper Catawba River basin and drains to Torrence Creek.

An unnamed tributary to Caldwell Station Creek is located within the project study area in the Upper Catawba River basin east of Holly Point Drive southwest of the NC-73/Holly Point Drive intersection. This unnamed tributary is designated as Stream A2, and is the only jurisdictional stream within the project study area that drains into Caldwell Station Creek. Caldwell Station Creek drains into McDowell Creek west of I-77.

**Table 11.** Project Study Area Streams<sup>+</sup>

<b>Stream Name</b>	<b>Channel Bottom Width<sup>#</sup></b>	<b>Bank Height</b>	<b>Depth</b>	<b>Substrate</b>	<b>Hydrology<sup>*</sup></b>
<b>Stream A</b> - unnamed tributary to Torrence Creek	2-4'	1-3'	1-3'	Clay, silt	Intermittent & Perennial
<b>Stream A2</b> - unnamed tributary to Caldwell Station Creek	1-3'	1-2'	0.5-1'	Sand, silt, gravel	Intermittent
<b>Stream B</b> - unnamed tributary to Ramah Creek	3-5'	1-3'	1-3'	Sand, silt, gravel	Intermittent
<b>Stream C</b> - unnamed tributary to Ramah Creek	3-8'	1-2'	1-2'	Sand, silt	Perennial
<b>Stream D</b> - unnamed tributary to Ramah Creek	4-15'	2-6'	2-6'	Sand, silt, cobble, boulders, bedrock	Perennial
<b>Stream E</b> - unnamed tributary to Ramah Creek	4-6'	1-5'	1-5'	Sand, silt, gravel	Intermittent
<b>Stream F</b> - Ramah Creek	4-15'	2-6'	2-6'	Sand, silt, cobble, rock	Perennial
<b>Stream G</b> - unnamed tributary to Ramah Creek	3-8'	2-5'	2-5'	Sand, silt	Perennial
<b>Stream H</b> - unnamed tributary to Ramah Creek	3-6'	1-2'	1-2'	Sand, silt	Intermittent
<b>Stream I</b> - unnamed tributary to Ramah Creek	4-10'	2-4'	2-4'	Sand, silt	Perennial

\* - Subject to NCDWQ intermittent-perennial determination.

+ - Subject to USACE jurisdictional determination.

# - All stream dimensions are approximate.

See **Figure 6a-c** for stream locations.

Torrence Creek and Caldwell Station Creek (Stream Index No. 11-115-2-(2) between I-77 and its confluence with McDowell Creek) are both classified as Class WS-IV waters. Class WS-IV waters are used as sources of potable water where a WS-I, II or III classification is not feasible. These waters are also protected for Class C uses. WS-IV waters are generally found in moderately to highly developed watersheds or protected areas, and involve no categorical restrictions on discharges (NCDENR, 2006). Upstream (east) of I-77, Caldwell Station Creek is classified as a Class C water (Stream Index No. 11-115-2-(1)). Class C waters are protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. There are no restrictions on watershed development or types of discharges for Class C waters (NCDENR, 2006).

McDowell Creek (Stream Index No. 11-115-(5) upstream of mouth to Mountain Island Lake) is located in the Catawba River subbasin 03-08-33 and is a tributary to the upper reaches of Mountain Island Lake. McDowell Creek is classified as a Class WS-IV water downstream of its confluence with Caldwell Station Creek. In 1999, the NC DWQ noted that bank erosion in McDowell Creek was severe and instream habitat was generally poor. A portion of McDowell Creek located approximately one mile west of the project study area is listed on the 2006 EPA Final 303(d) list as an impaired water due to impaired biological integrity. The Catawba River Basinwide Water Quality Plan mentions that upgrades to the Charlotte-Mecklenburg Utilities (CMU) 3 million gallons per day (MGD) Wastewater Treatment Plant (WWTP) had resulted in reduced nutrient loads. DWQ suggested that local initiatives be pursued to find solutions to habitat degradations. Benthic Station B-1, located 5 to 10 miles southwest of the project study area, was added in 2002 by DWQ as a basinwide-monitoring site to track this rapidly developing portion of Mecklenburg County. B-1 was previously monitored in 1990 and was given a Good-Fair bioclassification. In 2002, the bioclassification declined to Fair. At Fish Sampling Station F-1 (located within a five mile radius southwest of the project study area) the bioclassification declined from Fair in 1997 to Poor in 2002. The upper 7.2 miles of McDowell Creek (US-21 to SR 2136) are Impaired for aquatic life due to the bioclassifications at site B-1.

Water quality data collected by the Mecklenburg County Water Quality Program (MCWQP) since 1988 also indicates a significant decline in water quality conditions in McDowell Creek and the cove in Mountain Island Lake where McDowell Creek drains (NCDENR, DWQ, 2004). These declining water quality conditions are being caused by the increased discharge of pollutants carried in stormwater runoff from rapidly increasing impervious cover (parking lots, roads, houses, etc.) and construction activities in the McDowell Creek watershed. Sediment from construction sites, nutrients from lawn fertilizers, and heavy metals (lead, chromium and zinc) from parking lot and road runoff are the primary culprits. Currently, water quality in McDowell Creek Cove is ranked as "Poor" by Mecklenburg County and consistently ranks as one of the lowest water quality sites in the county (NCDENR, DWQ, 2003).

To assess the impacts from future development in this watershed, MCWQP completed a water quality model for the McDowell Creek watershed that indicates a significant increase in pollutant loads as the area approaches build out. The quality and usability of McDowell Creek Cove as a recreational area are also threatened by sediment depositions that decrease water depth and impair navigation (NCDENR, DWQ, 2004). In October 2002, the Huntersville Town Board adopted a "non-degradation" goal for the McDowell Creek watershed to halt the declining water quality trends. The board later expanded this goal to include all the surface waters within its jurisdiction. A Low Impact Development (LID) Ordinance was approved by the Town Board in February 2003 (NCDENR, DWQ, 2004).

CMU received a permit modification to expand the McDowell Creek WWTP (NC0036277) located in the lower reaches of the watershed near Mountain Island Lake. In its plans for stepped plant expansion to 12 MGD (6.6, 9.0, 12.0 MGD), CMU has included the treatment systems necessary to prevent an increase in existing pollutant loads. In addition, CMU will be expanding current nutrient removal systems at the plant. The schedule is to complete construction to treat 9.0 MGD in 2005 and finish construction to treat 12.0 MGD in 2007 (NCDENR, DWQ, 2004).

**Yadkin – Pee Dee River Subbasin.** The majority of the eastern portion of the project study area, located in the Yadkin – Pee Dee River Subbasin 03-07-11, drains toward the southeast via Ramah Creek and tributaries to Ramah Creek. The eastern-most portion of the project study area generally drains toward the east to West Branch Rocky River via tributaries of South Prong West Branch Rocky River (Stream Index No. 13-17-3-1). Ramah Creek (Stream Index number 13-17-4-4) and

several unnamed tributaries to Ramah Creek are located in the eastern portion of the project study area, in the Rocky River drainage basin of the Yadkin River Basin. The first of the unnamed tributaries is identified as Stream B. This first order tributary generally flows to the north through the project study area and crosses beneath NC-73 at a point approximately 800 feet east of NC-115. Stream B (see **Figure 6b**) drains into another first order tributary located north of the project study area, which eventually turns toward the southeast and crosses through the project study, and is identified as Stream C. Stream C crosses beneath NC-73 approximately 800 feet west of Jamesburg Drive (see **Figure 6b**).

On the south side of NC-73, south of the project study area, Stream C turns toward the northeast and drains to another first order stream, identified as Stream D (see **Figure 6b**). Stream D originates from a pond located south of the project study area, and flows along the southern boundary of the project study area before ultimately draining into Ramah Creek to the southeast. A smaller tributary (Stream E) drains into Stream D from the north near Jamesburg Drive (see **Figure 6b**).

The main branch of Ramah Creek referred to as Stream F crosses under NC-73 approximately 2000 feet to the northeast of the Jamesburg Road intersection with NC-73 (see **Figure 6b**). The portion of Stream F (Ramah Creek), which crosses under NC-73, is within the "Special Flood Hazard Area" subject to inundation by the 1% annual chance flood event. The Ramah Creek floodplain was the only floodplain identified as a "Special Flood Hazard Area" within the project study area.

Two additional unnamed tributaries to Ramah Creek (Streams G and H) are located to the northwest of the NC-73 intersection with Ramah Creek. Stream G (see **Figure 6b**) drains into Ramah Creek about 500 feet to the southeast of this location. Further downstream Ramah Creek from this confluence is the Willow Brook WWTP. This WWTP is located on the south end of the Willow Brook residential development and discharges approximately 0.048 MGD into Ramah Creek. Another unnamed tributary to Ramah Creek is located on the south side of NC-73 approximately 500 feet to the southwest of the Willow Breeze intersection with NC-73 and is referred to as Stream H (see **Figure 6b**). Stream H drains to the south from NC-73 into Ramah Creek.

The final unnamed tributary to Ramah Creek is located between Westmoreland and Black Farms Road and is referred to as Stream I (see **Figure 6c**). Stream I drains south to Ramah Creek.

Ramah Creek is classified as a Class C water from its source to its confluence with Clarke Creek. Ramah Creek flows to the southeast where it drains into Clarke Creek (Stream Index No. 13-17-4), close to the Mecklenburg and Cabarrus county line. Clarke Creek, which is also a Class C water, in turn, drains into the Rocky River in Cabarrus County. DWQ had never sampled Clarke Creek; however, it was historically placed on the 303(d) list based on observations of heavy sedimentation. The 2006 EPA 303(d) list indicates that Clarke Creek has impaired biological integrity. Portions of the City of Huntersville lie in the headwaters of the Clarke Creek watershed (NCDENR, DWQ, 2008).

The eastern-most portion of the project study area drains to the north to South Prong West Branch Rocky River (Stream Index No. 13-17-3-1), a Class C water. South Prong West Branch Rocky River drains into West Branch Rocky River approximately 4,500 feet northeast of the project study area. West Branch Rocky River (Stream Index No. 13-17-3) is a Class C water, which drains into the Rocky River. Rocky River (Stream Index No. 13-17), a Class C water located approximately 2.5 miles east of the project study area, has also been listed on the 303(d) list as having impaired biological integrity, turbidity, and high fecal coliform counts.

Currently there is one National Pollution Discharge Elimination System (NPDES) wastewater discharge permit into Ramah Creek in the Yadkin sub-basin, namely the AquaSource, Inc.-Willowbrook Waste Water Treatment Plant (WWTP) NPDES #NC0073539. The AquaSource, Inc.-Willowbrook WWTP is located approximately 1500 feet south of the project study area. No individual stormwater NPDES permits are issued within the sub-basin (NCDENR, 2002).

#### 4.5.4 Biotic Resources

**Terrestrial Communities.** The project study area is located within the smaller ecoregion subdivision (Level IV) referred to as the Southern Outer Piedmont. The Southern Outer Piedmont region is comprised mostly of planted pine, successional pine-hardwood, and historic oak-hickory-pine forest communities. Agricultural areas, including soybean and cornfields, poultry farms, and dairy farms, are an important component of the Southern Outer Piedmont region.

Vegetative terrestrial communities in the project study area were distinguished by plant species, location in the landscape, past disturbances, and hydrologic characteristics. Only habitats located directly within the project study area are summarized. The terrestrial habitat communities found within the project study area are listed in **Table 12** and shown in **Figure 6a-c**.

**Mixed Pine/Hardwood Forest** – This community type includes areas located in the central and eastern portions of the project study area, mostly on dry, upland ridges and side slopes. Dominant vegetation observed within this community type included loblolly pine, sweetgum, tulip poplar, red maple (*Acer rubrum*), winged elm (*Ulmus alata*), eastern red cedar, mockernut hickory (*Carya tomentosa*), muscadine (*Vitis rotundifolia*), poison ivy (*Toxicodendron radicans*), and greenbrier (*Smilax rotundifolia*).

**Table 12.** Terrestrial Communities Within the Project Study Area

Community Type	Acreage in Study Area	Percent of Study Area
Agricultural (crops and pasture)	18.51	10.97%
Maintained Fields	3.05	1.81%
Maintained and Disturbed Roadside	31.03	18.40%
Mixed Hardwood Forest	13.48	7.99%
Mixed Pine/Hardwood Forest	33.86	20.07%
Overgrown Fields	3.59	2.13%
Successional Forest	0.31	0.18%
Commercial, Industrial, Institutional, Residential Development	38.54	22.85%
Palustrine Forested Wetland	0.05	+
Palustrine Emergent Wetland	0.04	+
TOTALS	142.46	84.5%

+ - Denotes <0.05% cover

Note: Remaining 15.54% cover comprised of 15.41% roadway and 0.13% stream channels

**Mixed Hardwood Forest** – This community type includes areas located in the western, central and eastern portions of the project study area, primarily adjacent to drainageways on stream terraces and lower slopes. Dominant vegetation observed within this community type included sweetgum, tulip poplar, red maple, American beech (*Fagus grandifolia*), black gum (*Nyssa sylvatica*), Chinese privet (*Ligustrum sinense*), poison ivy, and greenbrier.

**Agricultural** – This community type includes crop fields and cow/horse pastures, which are primarily located in the eastern portion of the project study area, from SR-2430 (Westmoreland Road)

to SR-2427 (Ramah Church Road). Dominant vegetation observed within the crop fields included planted corn or soybean. Dominant vegetation within the pastures included a variety of cultivated grasses, including fescue (*Festuca* sp.), Bahia grass (*Paspalum notatum*), Bermuda grass (*Cynodon dactylon*), crabgrass (*Digitaria* sp.), and Johnson grass (*Sorghum halepense*).

**Maintained Field** – This community type includes an area in the eastern portion of the project study area adjacent to the easternmost drainage way contained within the project study area. This habitat is actively managed for the production of hay. Dominant vegetation observed within this community type included Bahia grass, fescue, and Johnson grass.

**Overgrown Fields** – This community type includes areas located in the eastern portion of the project study area. This habitat is similar to the maintained field habitat, but is no longer being actively managed, resulting in a more diverse array of plant species. Dominant vegetation observed within this community type included broomsedge (*Andropogon virginicus*), Bahia grass, fescue, bitterweed (*Helenium amarum*), Johnson grass, and winged sumac (*Rhus copallinum*).

**Maintained and Disturbed Roadside** – This community type consists of areas along the roadside, including grassed shoulders and utility line rights-of-way (R/W) and is located throughout the project study area immediately adjacent to NC-73, Holly Point Drive, and intersecting side roads. Dominant vegetation observed within the grassed shoulders included vasey grass (*Paspalum urvillei*), Bahia grass, crabgrass, and Bermuda grass. Dominant vegetation observed within the utility line R/W included sweetgum, red maple, and tulip poplar saplings, ragweed (*Ambrosia artemisiifolia*), dogfennel (*Eupatorium* sp.), blackberry (*Rubus argutus*), goldenrod (*Solidago* sp.), and Chinese bushclover (*Lespedeza cuneata*).

**Successional Forest** – This community type includes a small area located in the central portion of the project study area. This habitat is similar to the R/W habitat, but with a greater dominance of tree species. Shrub and herbaceous ground cover is very dense. Dominant vegetation observed within this community type included loblolly pine, sweetgum, tulip poplar, winged elm, muscadine, Japanese honeysuckle (*Lonicera japonica*), and greenbrier.

Two wetland community types, including palustrine forested wetland and palustrine emergent wetland, were identified within the project study area. The wetlands located within the project study area are depicted in **Figure 6b**.

**Palustrine Forested Wetland** – This community type includes a small area located in the central portion of the project study area, just east of the intersection of NC-73 and Jamesburg Drive. This wetland type is typically dominated by mature trees species. The density of the shrub stratum is usually low with little to no herbaceous groundcover. This wetland area showed evidence of disturbance with an open canopy resulting in a dense shrub layer. Drainage patterns and standing water were observed within the wetland area.

**Palustrine Emergent Wetland** – This community type includes a small area located in the east-central portion of the project study area, just southwest of the intersection of NC-73 and Willow Breeze Drive. Emergent herbaceous plants dominate this wetland type and shrub density can be low to high. Saturated soils to standing water up to 12 inches were observed within the wetland area.

**Fauna.** Fauna observed in the project study area included turkey vulture (*Coragyps atratus*), eastern king snake (*Lampropeltis getula getula*), eastern box turtle (*Terrapene carolina*), and various songbirds. Evidence (tracks) of white-tailed deer (*Odocoileus virginianus*) and raccoon (*Procyon lotor*) was observed along many of the streams within the project study area.

Common fauna expected to be present, but not observed, in the project study area include white-tailed deer, opossum (*Didelphis virginiana*), eastern cottontail rabbit (*Sylvilagus floridanus*), raccoon, and copperhead (*Agkistrodon contortrix*). These more common faunal species and likelihood of occurrence in the project study area and their habitat preferences are listed below.

**Aquatic Communities.** Aquatic communities located within the project study area include Ramah Creek, seven unnamed tributaries to Ramah Creek, one unnamed tributary to Caldwell Station Creek, and one unnamed tributary to Torrence Creek. None of the other jurisdictional streams, wetlands, or open water are identified on the NWI map within the project study area (USFWS, 2005). The NWI map depicts several palustrine forested wetlands and freshwater ponds in the project vicinity.

The portion of Ramah Creek and its tributaries contained within the project study area are currently considered impaired by the DWQ. Many of the waters in the Yadkin-Pee Dee River Basin are considered impaired on an evaluated basis as a result of fish consumption advisories (NCDENR, March 2003). Fish species were observed in Ramah Creek during the site visit. Frogs, tadpoles, and crayfish also were observed in Ramah Creek and the perennial tributaries to Ramah Creek located within the project study area.

No efforts to sample for fish or other aquatic biota were undertaken during the site visit. Based on surveys conducted by the NCDENR DWQ within the Yadkin River Basin, fish species that could be expected to frequent the project study area include tessellated darter (*Etheostoma olmstedii*), fantail darter (*Etheostoma flabellare*), red breast sunfish (*Lepomis auritus*), bluegill (*L. macrochirus*), bluehead chub (*Nocomis leptcephalus*), rosyface dace (*Clinostomus funduloides*), speckled killifish (*Fundulus rathbuni*), highback chub (*Hybopsis hypsinotus*), whitemouth shiner (*Notropis alborus*), redlip shiner (*N. chiliticus*), satinfin shiner (*Cyprinella analostana*), and highfin shiner (*N. altipinnis*) (<http://www.esb.enr.state.nc.us/documents/YadkinRiverBasin.xls> ).

#### **4.5.5 Protected Species**

Species with the federal classification of Endangered (E) or Threatened (T), Proposed (P) for such listing, or Threatened due to Similarity of Appearance (T [S/A]) are protected under the ESA, as amended (16 U.S.C. 1531 *et seq.*). The term “Endangered species” is defined as “any species which is in danger of extinction throughout all or a significant portion of its range”, and the term “Threatened species” is defined as “any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range” (16 U.S.C. 1532). The term “Proposed” is defined as “any species proposed for official listing as Endangered or Threatened.”

A search of the USFWS web page (January 31, 2008) and North Carolina Natural Heritage Program (NCNHP) databases indicate that there are four federally endangered or threatened species known to exist or that have formerly existed in Mecklenburg County as listed in **Table 13**.

**Table 13.** Federally Protected Species – Mecklenburg County

Species		Federal Status	County Occurrence	Potential Habitat (y/n)	Biological Conclusion
Common Name	Scientific Name				
Bald Eagle	<i>Haliaeetus leucocephalus</i>	BGEPA	Current	n	N/A
Carolina Heelsplitter	<i>Lasmigona decorata</i>	E	Current	y	May Affect, Not Likely to Adversely Affect
Michaux's Sumac	<i>Rhus michauxii</i>	E	Historic	y	No Effect
Schweinitz's Sunflower	<i>Helianthus schweinitzii</i>	E	Current	y	No Effect
Smooth Coneflower	<i>Echinacea laevigata</i>	E	Current	y	No Effect

BGEPA=Bald and Golden Eagle Protection Act – In July 9, 2007 Federal Register, the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife, effective on August 8, 2007. The bald eagle continues to be afforded protection pursuant to the Bald and Golden Eagle Protection Act.

*T = Threatened, E = Endangered*

*Source: North Carolina Natural Heritage Program*

The list of federally endangered and threatened species known to occur in Mecklenburg County was reviewed, and evaluations were performed to determine the likelihood of the presence of each species within the project study area. Field reviews were conducted between September 5 and September 8, 2006. Additional field reviews were conducted on October 29, 2008 and December 5, 2008 for the Holly Point Drive area, and on February 18, 2009. Areas in the project study area that matched descriptions of preferred habitat for the federally protected species listed in the above table were classified as potential protected species habitat. On-site field reviews revealed that the majority of the project study area consists of maintained and disturbed roadside, mixed pine/hardwood forests, mixed hardwood forests, agricultural and unmaintained fields, and residential and commercial areas. Elements of the Basic Mesic Forest were the only natural community present in the project study area (Schafale/Weakley). The protected species habitat field review revealed that habitat does exist for the Carolina heelsplitter, Schweinitz's sunflower, smooth coneflower, and Michaux's sumac. Areas of habitat for the Schweinitz's sunflower, smooth coneflower, and Michaux's sumac includes maintained utility and roadside rights-of-way and other clearings/woodland edges located throughout the project corridor. These habitat areas were identified on aerial mapping, confirmed through field observation, and surveyed in accordance with USFWS guidelines. Surveys for these species were conducted utilizing pedestrian foot transects and vehicular windshield observation, in combination and where appropriate.

**Federal Species of Concern.** A search of the NCNHP database provided existing information concerning the potential occurrence of federal species of concern within Mecklenburg County. "Federal species of concern" (FSC) is defined as "a species that may or may not be listed in the future; or a species under consideration for listing for which there is insufficient information to support listing." "Candidate" (C) species are taxons under consideration for which there is insufficient information to support a listing. The FSC and C designation are afforded no federal protection under the ESA. This database indicates that there are five species known to exist or that have historically existed in Mecklenburg County, as listed below in **Table 14**. No surveys of FSC were conducted, but **Table 14** includes the potential presence of habitat for each of these species as determined during field reviews.

**Table 14.** Federal Species of Concern – Mecklenburg County

Common Name	Scientific Name	State Status	Federal Status	County Status	Potential Habitat Present (Y/N)
Carolina Creekshell	<i>Villosa vaughaniana</i>	E	FSC	Current	Y
Tall Larkspur	<i>Delphinium exaltatum</i>	E-SC	FSC	Historical	Y
Piedmont Aster	<i>Eurybia mirabilis</i>	SR-T	FSC	Current	N
Carolina Birdsfoot-trefoil	<i>Lotus helleri</i>	SR-T	FSC	Current	Y
Carolina Darter-Central Piedmont Population	<i>Etheostoma collis pop.1</i>	E	FSC	Current	Y

*FSC = Federal Species of Concern, T = Threatened, E = Endangered, SR = Significantly Rare*

Source: North Carolina Natural Heritage Program

## 5. ENVIRONMENTAL CONSEQUENCES

This section identifies the consequences of implementing the Preferred Alternative to the human and natural environments. Potential impacts associated with the No-Build Alternative are included for comparison purposes, as appropriate.

### 5.1 Human Environment

Impacts to the human environment are described in the *Community Impact Assessment (CIA)* (May 2007), and are summarized in the following sections.

#### 5.1.1 Social and Physical

**Visual and Aesthetic.** The assessment of visual and aesthetic impacts was limited to addressing publicly accessible views, which are confined primarily to roadways. Viewer groups include those with view of the project and views from the project.

Overall, the degree of impact would be minimal in Section AA because it is highly urbanized. Since widening of the existing roadway will require large areas of cut and fill, and the removal of trees and vegetation, residences that are currently screened by terrain, trees, or vegetation could experience a change in their viewshed with the decrease in distance between the existing roadway. Overall, visual changes would be intermittent, with some residents subject to a view of the roadway, and other views shielded by cut/fill areas, forest, and project landscape.

Many residents living in neighborhoods adjacent to the corridor expressed visual and other aesthetic concerns. These issues were brought up at workshops throughout the process, and included input such as replacement of existing berms and neighborhood entrance signs (see **Section 6.2.1**). Visually pleasing aspects of the highway will be further studied and developed in the design phase.

The AA section of the project may include landscaping such as small trees between the curb and gutter and sidewalk to enhance the visual character of the roadway. The extent and type of plantings have not yet been determined, but will be such that they enhance the corridor visually while meeting roadway design safety standards.

Appropriate signage will direct travelers through the proposed quadrant roadway intersection using Holly Point Drive. Directional signage is not expected to negatively impact the visual environment in this area. The area is vastly urbanized and contains numerous small and large signs used to direct travelers to/from interstate commerce near the I-77 interchange and local businesses and retail establishments.

In Section AB the proposed project has the potential to offer pleasing rural views from the highway, such as wooded areas, streams, and hills. Conversely, the proposed project has the potential to detract from the existing views of the rural areas. Overall, the project could diminish the pastoral environment that is found in section AB, as this area has not transitioned to a more developed, urban/suburban character.

**Community/Neighborhood Stability and/or Cohesion.** The environmental process has given a high priority to avoidance and minimization of neighborhood disruption during the selection of the Preferred Alternative and development of the preliminary engineering designs. The proposed project will not displace any neighborhoods, relocate homes on the edge of any neighborhood, or relocate any

homes in the midst of any neighborhood. As such, the proposed project is not expected to negatively disrupt community stability or neighborhood cohesion.

### **5.1.2 Mobility and Access**

The project will positively affect short- and long-term accessibility to local retail/businesses, public services, and other facilities in North Mecklenburg County. The project will enhance overall mobility along the corridor, as the increased capacity/reduced congestion provided by the widened highway and proposed quadrant roadway intersection will provide overall travel time savings for daily commuters and transit users.

**NC-73 (Sam Furr Road) Access.** There are several residential neighborhoods directly adjacent to and accessed by NC-73 (i.e. Green Farms on the south side, Hampton Ridge and Cambridge Grove on the north side, and Knoxwood on the north side) (see **Figure 4** and **Appendix B**). All directional crossovers into these neighborhoods cannot be accommodated. There are two options associated with the project design. The first option includes providing directional crossovers at Cambridge Grove Drive and Sutters Run Lane. The second option is to provide these directional crossovers at Hampton Crossing Drive and Green Farm Road. Both options would result in neighborhood access changes. The second option was presented at a Public Workshop on February 26, 2009 (see **Section 6**).

Due to the joint connectivity of the Cambridge Grove and Hampton Ridge subdivisions, the second option would result in many Cambridge Grove residents utilizing Hampton Crossing Drive (heading east on NC-73 there will be no left turn allowed into the Cambridge Grove subdivision). Residents of Hampton Ridge, particularly those who live along Hampton Crossing Drive, may be negatively impacted by this option as a result of increased traffic in front of their homes.

The decision on crossover locations will be determined during final design.

**Holly Point Drive Access.** The concept would include a new median along Holly Point Drive, which will prevent all left turns except the left-over into Holly Crest. Business patrons exiting the businesses on the “inside” of Holly Point would be able to make U-turns. In addition, movements that are currently allowed, including eastbound left turns onto US-21 and straight movement through US-21 would be prohibited from Holly Point Drive.

As a result of input received during a small group meeting with these businesses (see **Section 6**), the Town and the NCDOT are considering incorporating minor design changes during the design phase to further balance traffic flow with access to business along Holly Point Drive.

### **5.1.3 Safety**

The proposed design will have a positive effect on roadway safety in the project study area. The quadrant roadway design will restrict the left turn movements from NC-73 onto US-21. Restricting these movements will decrease the number of conflict points at the intersection and therefore potentially decrease the number of accidents. Traffic signals are proposed at the NC-73/Holly Point Drive intersection and the US-21/Holly Point Drive intersection as part of the quadrant design. Currently, turn movements from Holly Point Drive can be difficult to make due to the limited number of acceptable gaps in traffic on NC-73 and US-21. The installation of traffic signals at both ends of Holly Point Drive will allow these turn movements to be made in a much safer manner.

The project is anticipated to reduce vehicle crashes, particularly during peak periods, by eliminating left turns out of neighborhoods, adding signalization, and reducing rear-end crashes associated with congestion.

#### ***5.1.4 Land Use and Consistency with Plans***

The Preferred Alternative is not anticipated to disrupt or directly convert existing land uses. The No-Build alternative would not be consistent with local plans or local long-range transportation plans. In comparison to the Preferred Alternative, the No-Build Alternative would not provide transportation infrastructure improvements needed for this area to meet projected transportation demands identified in local and regional plans. Since traffic congestion would worsen, the No-Build Alternative would have a negative impact on the implementation of existing and future land use and long-range transportation plans developed by local municipalities, the MUMPO, and the NCDOT.

The NC-73 arterial is recognized as a vital transportation corridor throughout the region, as evidenced by the plans described in **Section 4.2.2**. Implementation of the proposed project is compatible with area land use plans and long range transportation plans.

#### ***5.1.5 Farmland***

In accordance with Farmland Protection Policy Act (FPPA) of 1981 (7 CFR Part 658) and State Executive Order 96, an assessment was conducted for the potential impacts of land acquisition and construction activities on prime, unique, and local or statewide important farmland soils, as defined by the US Natural Resource Conservation Service (NRCS).

Eight of the twelve soils identified in **Section 4.5.2** are considered to be farmland soils by the USDA NRCS. Cecil sandy clay loam 2 to 8 percent slopes (CeB2), Enon sandy loam 2 to 8 percent slopes (EnB), Helena sandy loam 2 to 8 percent slopes (HeB), Monacan loam (MO) drained and either protected from flooding/not frequently flooded during the growing season, and Vance sandy loam soils 2 to 8 percent slopes (VaB) are considered Prime Farmland soils. Cecil sandy clay loam 8 to 15 percent slopes eroded (CeD2), Enon sandy loam 8 to 15 percent slopes (EnD), and Vancy sandy loam 8 to 15 percent slopes (VaD) are Farmland of Statewide Importance soils.

The project was coordinated with the USDA Soil Conservation Service (now the NRCS) during the 1993 planning effort. The Department of Agriculture AD-1006, Farmland Conversion Impact Rating, was forwarded to the Soil Conservation Service for review. The total points scored on the AD-1006 indicated that the proposed project fell below the 160-point threshold for impacts to farmland soils.

Since the project would require small amounts of right-of-way directly adjacent to existing roadway, direct impacts to farmland soils would be minimal. The project corridor is currently in or planned for urban uses (e.g., houses, commercial buildings, industrial buildings, shopping complexes, utilities/services). Land already committed to urban development is not subject to the FPPA. Active farming operations would not be impeded as a result of the proposed project.

### ***5.2 Relocations***

Preliminary designs were developed to avoid relocation impacts. No relocations/displacements are anticipated for the proposed project.

### **5.3 Economic**

The construction of the project would have an immediate benefit to the economy during construction phase of the project. This effect from construction would be temporary. Temporary short term construction impacts to retail establishments and other businesses in the area, particularly in Section AA, are anticipated. Following completion of the overall project, the proposed project would provide long-term benefits to the local and regional transportation network.

As noted in the *NC-73 Small Area Land Use and Economic Development Plan* improvements to the NC-73 corridor will provide needed mobility and efficient functioning due to the role as an east-west regional connector and as a thoroughfare for local trips.

The proposed project would enhance the connectivity between two major interstates I-77 and I-85. The proposed project would economically benefit people traveling through the area by freeway and within the area of North Mecklenburg County through travel time savings.

Property owners along Holly Point Drive and those between I-77 and US-21 north and south of NC-73 have expressed concerns regarding the proposed project on their businesses. Concerns include both short-term construction impacts and the long-term impact of increased traffic and access restrictions along Holly Point Drive to their economic survival. The Town will work with these businesses in developing signage and a communication program. The intent would be to minimize short and long term economic impacts to these businesses through signage that directs drivers/patrons through the area and/or to adjacent businesses.

As a result of input received during a small group meeting with these businesses (see **Section 6**), the Town and the NCDOT are considering incorporating minor design changes during the design phase to allow better access to individual businesses along Holly Point Drive. However, allowing additional access (e.g. through u-turn bulbs and combining driveways) could result in impacts to the parking area of these adjacent businesses.

### **5.4 Community Resources and Services**

It is anticipated that the extent of impacts to public services as a result of the proposed project will be minimal and short-term.

**North County Regional Library.** Access to the library may be affected by construction activities in the form of decreased patronage during construction. Long-term impacts are not anticipated, as the library would still be reasonably accessible via I-77 for residents of Huntersville and surrounding municipalities.

**CATS Bus Route(s) and Layover.** The CATS bus routes (including 96, 97, 98, and 99) shown in **Figure 5** will be affected by construction activities and the incorporation of the quadrant roadway intersection.

The use of Holly Point Drive for the operation of the quadrant roadway intersection concept for US-21 and NC-73 will impact the current CATS layover location off of Holly Point Drive. The Preferred Alternative would require moving this layover location. The Town has coordinated with CATS and North County Regional Library representatives to determine a mutually acceptable relocation, such as Holly Crest Drive, for the CATS Village Rider layover. The Town will work with CATS to undertake a relocation solution as a separate project.

**Schools/School Bus Routes.** No schools would be directly impacted by the Preferred Alternative. It is anticipated that the project will temporarily affect school bus routes during construction, as well as result in modifications of existing routes and/or promote new routes. Maintenance of traffic along these routes will be important during construction. Coordination with CMS will be undertaken to minimize impacts to school bus routes.

**Emergency Management Systems.** It is anticipated that the project will temporarily impact emergency services during construction, as well as result in modifications of existing routes and/or promote new routes. Maintenance of traffic along these routes will be important during construction. Coordination with EMS will be undertaken to minimize impacts to emergency response times.

STIP Project R-2632 would have a long-term positive impact on emergency response times along the corridor. The project would likely quicken some response times for services by decreasing travel times for public services within as well as outside of the project corridor and by providing improved mobility.

## **5.5 Environmental Justice**

A discussion of potential cumulative effects of the proposed project on the Rich Hatchett Road community is included in **Section 5.6.2**.

A review of census data, relocation information, and access changes revealed that no disproportionately high and adverse impacts to low-income and/or minority populations would occur as a result of implementing STIP R-2632.

## **5.6 Indirect and Cumulative Effects**

Indirect and cumulative effects are described in the *Community Impact Assessment (CIA)* (May 2007), and are summarized in the following sections.

The purpose of the Qualitative Indirect and Cumulative Effects (ICE) Assessment is, to the extent reasonable and practical, assess the potential indirect and cumulative effects that may result from the incremental effects of STIP Project R-2632 with other past, present, and future development activities in the project region.

The Town of Huntersville staff indicated that there are relatively little planned developments along NC-73 nor currently any discussions with developers of potential developments. Past development activities are mainly commercial in nature along NC-73 in the western portion of the corridor (Section AA), while the eastern limits of the corridor have remained dedicated to low density residential development.

### **5.6.1 Potential ICE for Assessment**

There are no explicit economic development purposes for the proposed project, nor is the proposed project being constructed to serve any specific new developments. The Town has seen significant growth and development along the corridor, particularly between I-77 and US-21. Continued congestion around the interstate would likely deter future development interest along the corridor overall. The potential for growth and land use changes in the broader project area are moderate. Land use changes are likely to occur whether or not the project is constructed, as the Town is encouraging mixed use development in the corridor overall, which generally has transitioned from rural to suburban/urban character.

The project area contains growth-inducing factors such as the presence of developable land and the availability of water and sewer service. The potential for the proposed project to increase development pressure on the vacant land in the project area is moderate. The market for development appears to be minimal in the project area, and other outlying areas of the Charlotte metro region are competing for growth. There is the potential for existing vacant and/or agricultural parcels to transition from their current uses to other uses such as residential and/or commercial development in the eastern section.

### ***5.6.2 ICEA/Evaluation of Analysis Results***

The Town and surrounding municipalities are taking a proactive approach to area planning. Local land use plans support growth and development within the project area, directed through a well-reasoned set of land use and development plans and implementation policies. The plans provide a framework for making planning and zoning decisions, promoting orderly land use, and implementing public improvements.

The proposed project is not anticipated to substantially alter current or already planned future land use plans. It is anticipated that commercial and residential development will continue to increase somewhat within the corridor within the next decade. However, increased development along the corridor is expected to be modest and is not conditional solely due to the proposed project. Regardless, improvements to the corridor may affect the timing of new development by providing better mobility in a desirable area of North Mecklenburg County.

Widening improvements have the potential to induce changes in local or regional accessibility. Also, if conditions are favorable for development and/or a region is currently undergoing urbanization, an improvement in the transportation infrastructure can influence where development will occur. There is available land (mostly east of NC-115) but given the Town's desire for controlled growth and an uncertain real estate market the developable land along the project corridor could remain vacant within the next two to three decades. The timing of Section AB and the CATS North Corridor would further influence growth and land use effects east of NC-115.

There is the potential for the proposed project to induce land use changes along the corridor. This is probable because of the corridor's proximity to and connection with more urban/commercial strips and to the interstate. The initial improvements to Section AA will provide additional capacity to relieve congestion for a small section of this major corridor.

The proposed project is not projected to induce new development on its own, but the timing of improvements to Section AA may increase the rate of development that is occurring in the overall project area. However, there are no developments in the project impact area that have been approved and platted and conditional upon improvements to NC-73.

**Analysis Results – Indirect Effects.** The project will affect traffic patterns in the area, but this is not anticipated to influence future growth and development in the project area. There is the potential for the proposed project to induce land use changes along the corridor. This is probable because of the corridor's proximity to and connection with more urban/commercial strips and the proximity to the interstate. However, since travel time savings should be minimal changes in land use effects related to travel time savings should be minimal. Conditions in the project area are somewhat conducive to growth. However, the potential for project-induced growth and transitions to higher intensity land uses are moderate.

The proposed improvements to NC-73 will provide additional capacity to relieve congestion for a small section of this major regional corridor. An indirect impact of improved transportation facilities in the corridor may be increased development or transition to higher intensity uses (i.e. conversion of farmland), particularly within currently undeveloped or underdeveloped parcels such as the undeveloped parcels located closer to the western section of the project.

**Analysis Results – Cumulative Effects.** Impacts from the project are more likely to be cumulative in nature rather than indirect project-induced effects. The project has the potential for cumulative effects resulting from the incremental effects of the proposed widening with other past projects and current and future development activities in the project region. Improvements to the I-77 interchange within the analysis time frame could affect the timing of development along the eastern portion of corridor.

Incremental future growth within the project area would potentially have negative environmental impacts, including, but not limited to, increased traffic, noise, and run-off from impervious surfaces. Future development in the eastern section also could include incremental impacts to farmlands, cultural resources (i.e. undiscovered archaeological sites), and a reduction in woodland resources and wildlife habitat. Habitat fragmentation already exists in the project vicinity. Existing land uses have disturbed natural communities along NC-73, particularly in Section AA.

The Town has taken and continues to take a proactive approach in managing development and growth within the area, taking into consideration public health and interests, as well as natural resources. The existing regulations and ordinances governing ongoing future development in the project area will serve to minimize their respective contributions to cumulative impacts.

For example, the Town of Huntersville implemented a Water Quality Ordinance in 2003 to govern land development activities to prevent surface water quality degradation (Town of Huntersville, 2003). The ordinance instills the use of best management practices (BMPs) to reduce non-point source pollution into receiving waters, and requires that land development activities be performed in manners to minimize the degradation of water quality conditions. During roadway widening activities, temporary impacts to surface waters that may result from construction of the proposed project would be minimized by adherence to an approved sedimentation and erosion control plan, plus implementation of BMP's. Additionally, short-term impacts, such as sedimentation and erosion, would be minimized through the implementation and proper maintenance of a State-approved sediment and erosion control plan pursuant to the Sedimentation and Pollution Control Act.

***Rich Hatchett Community.*** The Rich Hatchett Community has expressed concerns regarding overall growth in Huntersville and the cumulative growth and development spurred by the construction of the I-77/NC-73 interchange (see **Appendix D**). Since the interchange was constructed, development soared in the area, including the Northcross Shopping Center, and residential subdivisions, etc. Local access to homes in this community would remain unchanged as a result of the proposed project. However, residents have expressed concerns with regard to overall increased traffic and perceive this to negatively affect the quality of life for this small yet established neighborhood.

Traffic has increased on Rich Hatchett Road. Travelers often use this road as a “bypass” of the US-21/NC-73 intersection because of the poor traffic operations there. A traffic signal has been installed at the Northcross Shopping Center directly across from Rich Hatchett Road. Although there is a substantial curve on Rich Hatchett Road, which makes this road less appealing as a through-road, some shopping center patrons may choose to use Rich Hatchett Road. However, the traffic operation issues at US-21/NC-73 currently make this road a more likely cut-through, even with less than desirable geometric conditions.

Improvements in Section AA will improve travel time and traffic flow at the intersection and along the NC-73 and US-21 corridors. Traffic that currently detours onto Rich Hatchett Road may be less likely to do so once this project is completed, as the easiest path to both NC-73 and the new shopping center would be along US-21. Therefore, the proposed project may reduce traffic on Rich Hatchett Road, rather than increase traffic on the facility.

The Town is proposing to make or require future connections between other neighboring roads and Rich Hatchett Road to improve connectivity in the Town. These connections may increase traffic volumes on Rich Hatchett, but are independent of and not caused by improvements proposed as part of R-2632 (Section AA).

The Town has been committed to and continues to work with this community to help mitigate and/or minimize the concerns of cumulative growth for this community.

## **5.7 Utilities**

The following entities have utilities that would require relocation for this project:

- Energy United and Duke Power – Power poles
- AT&T – Phone
- Piedmont Natural Gas – Natural gas
- Charlotte-Mecklenburg Utility Department – Water/sewer lines
- Time-Warner – CATV
- Spring Fiber Optic and Quest – Fiber optic

The project study area has a heavy concentration of utilities owned by numerous companies. There are several underground and overhead utilities, including a power sub-station adjacent to NC-73. Adverse impacts to area utilities are not anticipated. The preferred alternative was selected considering, among other things, avoidance and minimization of impacts to utilities. For example, just west of the NC-115 intersection, the proposed alignment shifts to the north to avoid impacts to a power substation located on the south side of NC-73. If project activities necessitate utility relocation, it would be done in such a way as to prevent interruption of service to the maximum extent practicable.

## **5.8 Cultural Resources**

### **5.8.1 Historic Architecture**

The 1993 CE identified one historic property in the project's Area of Potential Effects (APE), the William Sloane Mayes House. This property was determined to be not eligible for the National Register of Historic Places. A NCDOT architectural historian conducted a new survey of the APE in April 2007 and identified five properties greater than 50 years of age in the APE. The Mayes House was one of the five properties.

Since the date of the survey, the project limits were altered and two of the five properties fell outside of the revised APE. These two properties were the Caldwell Station School and the Marcus and Nancy Caldwell House. Subsequently, a report that re-evaluated the Mayes House and noted that the APE had been altered was prepared and submitted to the State Historic Preservation Office (HPO) on April 27, 2007. The Mayes House was determined once again not eligible for the National Register.

On May 9, 2007, the HPO concurred with the findings of the report and agreed that there were no eligible properties within the APE (see **Appendix A**). However, the HPO noted that the Marcus and Nancy Caldwell House was very likely eligible for the National Register and requested a re-evaluation of the project if the projects limits were to shift.

### **5.8.2 Archaeology**

Archaeological investigations were completed for Section AB in 2007. One previously unrecorded archaeological site, 31MK1082, was identified within the APE. In correspondence dated November 28, 2007 (see **Appendix A**), the HPO concurred that Site 31MK1082 is not eligible for the National Register of Historic Places (NRHP).

## **5.9 Air Quality**

The project is located in Mecklenburg County, which is within the Metrolina nonattainment area for ozone (O<sub>3</sub>) and the Charlotte nonattainment area for carbon monoxide (CO) as defined by the EPA. The 1990 Clean Air Act Amendments (CAAA) designated these areas as moderate nonattainment area for CO. However, due to improved monitoring data, this area was redesignated as maintenance for CO on September 18, 1995. This area was designated moderate nonattainment for O<sub>3</sub> under the eight-hour ozone standard effective June 15, 2004. Section 176(c) of the CAAA requires that transportation plans, programs, and projects conform to the intent of the state air quality implementation plan (SIP). The current SIP does not contain any transportation control measures for Mecklenburg County. The Mecklenburg-Union Metropolitan Planning Organization 2030 *Long Range Transportation Plan (LRTP)* and the 2007-2013 *State Transportation Improvement Program (STIP)* conform to the intent of the SIP. The USDOT made a conformity determination on the LRTP and the STIP on June 29, 2007. The current conformity determination is consistent with the final conformity rule found in 40 CFR Parts 51 and 93. There are no significant changes in the project's design concept or scope, as used in the conformity analyses.

The baseline condition for carbon monoxide (CO) in Mecklenburg County is in a maintenance condition. According to the calculated existing and future emissions of carbon monoxide, the proposed widening of NC-73 from US-21 to SR-2693 is not expected to alter Mecklenburg County's maintenance status or add to the pollutant burden of the region (North Carolina, Mecklenburg County, Region IV). All existing and predicted carbon monoxide concentrations are below the one-hour standard of 35 ppm and the eight-hour standard of 9 ppm.

During construction, air emission would consist of fugitive dust (e.g., wind-borne particulate matter from uncovered soil and gravel piles) and NO<sub>x</sub>, CO, VOCs, carbon dioxide and sulphur dioxide emissions from construction equipment. Toxic air contaminants, particularly those associated with diesel exhaust, could also affect air quality in the vicinity of the project.

All air quality impacts during construction are anticipated to be minor and largely confined near the construction site. Construction equipment and vehicles and construction worker vehicles would generate some additional localized traffic emissions. Likewise, traffic delays due to construction could result in temporary increases in emissions associated with potentially more idling time or longer trips for detour. In terms of regional air quality, the impact of construction-related traffic is expected to be temporary and inconsequential.

**Mobile Source Air Toxic Effects.** As part of its duties to administer the Clean Air Act (CAA), the Environmental Protection Agency (EPA) issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17229, March 29, 2001). Out of the 188 hazardous air

pollutants originally identified by the CAA, six have been identified by EPA as priority Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. The six priority MSATs currently identified are benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1, 3-butadiene.

The amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for proposed project is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the project alternative will have the effect of moving some traffic closer to nearby homes, and businesses; therefore, under the Preferred Alternative there may be localized areas where ambient concentrations of MSATs could be higher under certain Build Alternative than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections that would be built at the intersection at NC-73 and US-21. However, as discussed above, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be accurately quantified due to the inherent deficiencies of current models.

When a highway is widened and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today. The proposed project is on an existing alignment; MSATs are not expected to decline unless the reported vehicle miles traveled more than doubles by 2020 (due to the effect of new EPA engine and fuel standards).

## **5.10 Noise Impacts**

### **5.10.1 Procedure for Predicting Future Noise Levels**

Noise modeling of the future Build condition was conducted by utilizing the FHWA's Traffic Noise Model (TNM) 2.5.

**NC-73.** The Preferred Alternative widening alignment was used for the noise analysis. Only those existing natural or man-made barriers were included in setting up the model. For the noise predictions along NC-73, roadway sections and proposed intersections were assumed to be flat and at-grade in order to represent the "worst-case" topographical conditions. Noise predictions reported are highway related noise predictions for 2006 and the design year 2030.

**Holly Point Drive.** Elevation data for all roadway, receptor and terrain points were obtained using existing and proposed cross-sections developed for Holly Point Drive and US-21. Holly Point Drive and US-21 were modeled because they were considered to be the most dominant sources of traffic noise for the North County Regional Library. A combination of Microstation and SoundPlan 6.5 was utilized to "digitize" the roadway geometry and receptor location from proposed design plans. Additional input included traffic data variables such as volume, vehicle mix and design speed on US-21 and Holly Point Drive. Vehicle classifications and 2030 Build Condition AM peak hour (7:00 AM – 8:00 AM) and PM peak hour (5:00PM – 6:00PM) traffic volumes were input and based on the traffic study of the quadrant-left configuration alternative (HNTB, March 2008).

The noise measurement location at the North County Regional Library was included in the model to predict future noise levels and to consequently identify traffic noise impacts. Since there are no areas of frequent human outdoor use that were identified, the noise analysis was conducted to determine interior noise levels in the library. A noise mitigation analysis was not conducted because traffic noise impacts are not anticipated.

### **5.10.2 Future Build Condition Noise Levels**

**NC-73.** Current conditions reveal that all of the five locations along NC-73 will be approaching or exceeding the FHWA NAC of 67 dBA for outdoor activity category B inside the 50' buffer area. The Willow Creek area will be violating 67 dBA outdoor standards within the 100' buffer areas. This does not imply that every structure within these buffer areas will be impacted by noise violations from traffic sources, since the presence of earthen berms (of which there are several in the study area now) or landscaping may attenuate noise conditions in some areas. Also, whether the property is being impacted from the front yard or rear yard (in the case of residential properties) will also affect a determination of impacts. The west end of the project study area has the most structures that may be impacted by increases in ambient noise levels. The east end of the project is considerably more rural and has many fewer structures that could be negatively affected.

Under Title 23 CFR Part 772, approximately 40 residences covered under the NAC 67 Leq noise threshold (residential) are predicted to be impacted due to highway traffic noise associated with project implementation. The maximum extent of the 67 Leq noise level contour is approximately 200 feet from the center of the proposed roadway. Three additional sites covered under the NAC 72 Leq noise threshold (commercial) are predicted to be impacted due to highway traffic noise associated with project implementation.

**Appendix C** lists the exterior traffic noise level increases for the identified receptors by roadway section. Substantial noise level impacts associated with the implementation of the proposed project

are anticipated. Noise levels are anticipated to approach or exceed the established NAC noise criteria of 67 dBA and 72 dBA for various residences and commercial buildings bordering the roadway. The predicted noise level increases for this project range between 3.7 to 9.9 dBA. When real-life noises are heard it is possible barely to detect noise level changes of 2-3 dBA.

**Holly Point Drive.** The traffic noise impact analysis was conducted for the North County Regional Library for the AM and PM peak traffic hours defined by the traffic study for the proposed project. The 2030 Build Condition exterior noise levels are not predicted to approach or exceed the FHWA and NCDOT NAC of 67 dBA because of the low (30 mph) design speed on Holly Point Drive. In addition, the library is located approximately 75 feet from the edge of pavement of Holly Point Drive and more than 260 feet from the edge of pavement of US-21, and the first floor of the library is approximately 18 feet lower than the elevation of Holly Point Drive. Therefore, the first floor will receive some protection from the increasing terrain between the building and the roadway.

Since there were no identified areas of frequent outdoor human use associated with the library, interior noise levels were determined using the building noise reduction factors provided in 23 CFR 772. Interior noise levels are not expected to approach or exceed the FHWA and NCDOT interior NAC of 52 dBA at the North County Regional Library.

**Abatement Measures.** The use of vegetation for noise mitigation is not considered reasonable for this project, due to the substantial amount of right-of-way necessary to make vegetative effective. FHWA research has shown that a vegetative barrier should be approximately 100 feet wide to provide 3-dBA reduction in noise levels. In order to provide a 5-dBA reduction, substantial amounts of additional right-of-way would be required. The cost of the additional right-of-way and plant sufficient vegetation is estimated to exceed the abatement threshold cost allowed per benefited receptor. Noise insulation was also considered; however, no public or non-public institutions were identified that would be impacted by this project (NCDOT Noise Assessment).

**Construction Noise.** The major construction elements of this project are expected to be earth removal, hauling, grading, and paving. General construction noise impacts such as temporary speech interference for passers-by and those individuals living or working near the project, can be expected particularly from paving operations and from the earth moving equipment during grading operations. However, considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours, these impacts are not expected to be substantial. The transmission loss characteristics of nearby natural elements and man-made structures are believed to be sufficient to moderate the effects of intrusive construction noise.

## **5.11 Natural Environment**

### **5.11.1 Water Resources**

Construction activities will include building new structures/culverts over surface waters or placing pipes in stream channels. The construction activities will follow the NCDOT's BMPs for Construction and maintenance Activities and Protection of Surface Waters. Sedimentation control guidelines will be strictly enforced during construction activities.

**Table 15** identifies the impacts to potentially jurisdictional wetlands and streams for the Preferred Alternative. These impact estimates are based on the most current project design (February 26, 2009). Streams A, A2, and B are located in Section AA of the project.

### 5.11.2 Biotic Resources

This section summarizes the potential impacts to community types in the project area. Biotic communities are described in **Section 4.6.4**.

Anticipated impacts to these communities are identified in **Table 16**. The project is expected to have relatively minimal impacts on biotic communities due to the limited extent of infringement on natural communities. Project-related impacts to vegetative communities will be largely restricted to the disturbed (maintained) areas along existing R/W as well as disturbed riparian areas along Ramah Creek and jurisdictional stream channels within the project study area.

**Table 15.** Impacts to Potential Jurisdictional Wetlands and Streams

Resource	Area Impacted	
	Acres	Linear Feet
<b>Wetland Communities</b>		
Palustrine Forested Wetland A	0.016	-
Palustrine Emergent Wetland B	0	-
<b>TOTAL</b>	<b>0.016</b>	<b>-</b>
<b>Jurisdictional Streams</b>		
Stream A; unnamed tributary to Torrence Creek	-	0
Stream A2; unnamed tributary to Caldwell Station Creek	-	0
Stream B; unnamed tributary to Ramah Creek	-	125
Stream C; unnamed tributary to Ramah Creek	-	115
Stream D; unnamed tributary to Ramah Creek	-	9
Stream E; unnamed tributary to Ramah Creek	-	27
Stream F; Ramah Creek	-	94
Stream G; unnamed tributary to Ramah Creek	-	86
Stream H; unnamed tributary to Ramah Creek	-	28
Stream I; unnamed tributary to Ramah Creek	-	112
<b>TOTAL</b>	<b>-</b>	<b>596</b>

**Table 16.** Impacts to Terrestrial Communities

<b>Community Type</b>	<b>Area Impacted (ac.)</b>
Agricultural Crop Field	4.3
Commercial	3.2
Industrial	1.1
Institutional	0.16
Maintained Field	1.2
Maintained and Disturbed Roadside	35.8
Mixed Hardwood Forest	7.5
Mixed Pine/Hardwood Forest	18.0
Overgrown Field	1.2
Pasture	5.5
Residential	6.6
Successional Forest	0.20
<b>TOTAL</b>	<b>84.76</b>

### **5.11.3 Jurisdictional Topics**

**Waters of the US.** Jurisdictional waters of the US are defined by 33 CFR 328.3(b) and are protected by Section 404 of the Clean Water Act (33 U.S.C. 1344), which is administered and enforced in North Carolina by the US Army Corps of Engineers (USACE), Wilmington District.

Jurisdictional wetlands are defined in the field as areas that exhibit positive evidence of three environmental parameters: hydrophytic vegetation, wetland hydrology, and hydric soils. The results of the on-site field review indicate that there are ten jurisdictional stream channels (Streams A through I) and two jurisdictional wetland areas (Wetlands A and B) located within the project study area (see **Section 4.6**). Jurisdictional wetland and stream boundaries were delineated and flagged in the field. The locations of jurisdictional features are depicted on **Figure 6a-c**. Each stream and wetland feature located within the project study area is described below. A Request for Jurisdictional Determination (dated February 20, 2007 and March 22, 2009) has been forwarded to the USACE Wilmington District.

**Jurisdictional Streams.** Stream A is an unnamed tributary to Torrence Creek and is located in the west central portion of the project study area, between Knoxwood Drive and NC-115. On April 11, 2007, the NC DWQ conducted a field review of Stream A and determined the drainage feature on the north side of NC-73 to be a non-jurisdictional, ephemeral stream that drains into Stream A through the a culvert.

Stream B is an unnamed tributary to Ramah Creek and is located in the central portion of the project study area, between NC-115 and Parr Road. This stream flows south to north under NC-73 via a 42" reinforced concrete pipe (RCP), and was concluded to be a jurisdictional stream with two distinct sections.

Stream C is an unnamed tributary to Ramah Creek and is located in the central portion of the project study area between Parr Road and Jamesburg Drive. Stream C was concluded to be a jurisdictional, perennial stream. Stream C drains into Stream D south of the project study area.

Stream D is an unnamed tributary to Ramah Creek and is located in the central portion of the project study area across from the intersection of NC-73 and Jamesburg Drive. Stream D was concluded to be a jurisdictional, perennial stream.

Stream E is an unnamed tributary to Ramah Creek and is located in the central portion of the project study area just east of the intersection of NC-73 and Jamesburg Drive. The stream is contiguous with a wetland area (Wetland A) upstream, and drains into Stream D downstream. Stream E was concluded to be a jurisdictional, intermittent stream. Stream E flows northwest to southeast beneath NC-73 via a 36" RCP.

Stream F is named Ramah Creek and is a perennial tributary to Clarke Creek. Ramah Creek is located in the central portion of the project study area between Jamesburg Drive and Willow Breeze Drive. A strong floodplain associated with Ramah Creek was observed within the project study area.

Stream G is an unnamed tributary to Ramah Creek and is located in the central portion of the project study area approximately 500 feet northeast of the Ramah Creek NC-73 crossing. Stream G was concluded to be a jurisdictional, perennial stream due to the persistent and continuous flow of water in the channel.

Stream H is an unnamed tributary to Ramah Creek and is located in the east central portion of the project study area approximately 500 feet southwest of the intersection of NC-73 and Willow Breeze Drive. The stream is contiguous with a wetland area (Wetland B) downstream within the project study area. Both Stream H and Wetland B appear to be isolated, having lost a hydrological connection to Ramah Creek. Stream H was concluded to be a jurisdictional, intermittent stream.

Stream I is an unnamed tributary to Ramah Creek and is located in the east central portion of the project study area between Westmoreland Road and Black Farms Road (SR-2428). The stream appears to have been impacted (including channelization and loss of riparian buffer) by agricultural activities. Stream I was concluded to be a jurisdictional, perennial stream.

**Jurisdictional Wetlands.** Wetland A is a small, forested headwater wetland contiguous to Stream E. Wetland hydrology indicators included saturated soils, pockets of inundation by up to 2 inches of water, and drainage patterns. Dominant vegetation observed in Wetland A included Chinese privet, red maple, greenbrier (*Smilax rotundifolia*), and arrow-wood (*Viburnum dentatum*). Hydric soil indicators were also observed.

Wetland B is an emergent herbaceous wetland contiguous to Stream H. Both Wetland B and Stream H appear to be isolated, having lost their hydrological connection to Ramah Creek. Wetland hydrology indicators included saturated soils and inundation by up to 12 inches of water, and drainage patterns. Dominant vegetation observed in Wetland B included black willow (*Salix nigra*), red maple, common alder (*Alnus serrulata*), swamp smartweed (*Polygonum hydropiperoides*), false nettle (*Boehmeria cylindrica*), and wool grass (*Scirpus cyperinus*). Hydric soil indicators were also observed.

Wetlands were assessed utilizing DWQ's current guidance document for assessing wetland values (NCDEHNR, 1995). The parameters assessed included water storage capacity, bank and shoreline

stabilization, pollutant/sediment removal, wildlife habitat, aquatic life value, and recreation and education.

As shown in **Table 15**, the Preferred Alternative will directly impact 596 linear feet of streams based on preliminary design cut and fill slopes and clearing limits. Approximately 125 linear feet of this impact will occur within Section AA (to Stream B). The Preferred Alternative also will impact .016 acres of wetlands, which are located in Section AB.

#### **5.11.4 Permits**

Impacts to jurisdictional waters of the US resulting from the project would require a Clean Water Act Section 404 Permit from the USACE. It is anticipated that a Nationwide Permit (NWP) Number 14 for Linear Transportation Crossings would be applicable to permit proposed project activities. In the event multiple crossings of the same stream are proposed, it is anticipated that the total impact of each crossing on that stream would be combined into one NWP No. 14 activity as a single and complete project. It is further anticipated that one PCN for NWP No. 14 would be submitted, describing multiple waters/wetlands crossings, and identifying each impact area as a single and complete project.

Since this project is being processed as a Categorical Exclusion (CE) pursuant to Federal Highway Administration guidelines, NWP No. 23, "*Approved Categorical Exclusions*" may also be applicable to permit this project. NCDWQ has promulgated WQC No. 3403 for NWP No. 23.

#### **5.11.5 Mitigation**

The Council on Environmental Quality (CEQ) has defined mitigation in 40 CFR Part 1508.20 to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts. Three general types of mitigation include avoidance, minimization and compensatory mitigation. Compensatory mitigation consists usually of the restoration of existing degraded wetlands or waters, or the creation of waters of the US of equal or greater value than the waters to be impacted. This type of mitigation is only undertaken after avoidance and minimization actions are exhausted and should be undertaken, when practicable, in areas near the impact site (i.e., on-site compensatory mitigation).

Since jurisdictional streams in the project study area intersect the project corridor, and given the need to widen the road, impacts to waters of the US as a result of the NC-73 widening project are largely unavoidable. However, preliminary design efforts attempted to avoid impacts to all streams. The widening in Section AA that includes Stream A was directed to the north side of the existing facility. A retaining wall is proposed south of highway NC-73 to avoid impacts to Stream A. Similar avoidance and minimization strategies will be utilized in Section AB where feasible and practicable.

A final determination regarding mitigation to the waters of the US rests with the USACE and the NCDWQ, and compensatory mitigation for impacts will be resolved during the permitting phase.

#### **5.11.6 Protected Species**

The entire project study area was again field reviewed on February 18, 2009 in an effort to ascertain disturbances in the project corridor that had taken place since the conclusion of the 2006 protected species surveys. This 2009 field review identified the addition of additional commercial development at the Northcross Village shopping center located at the northeast corner of the NC-73/US-21 intersection. Areas disturbed as part of this recent development are currently comprised of commercial buildings and/or maintained landscaped areas. These newly disturbed areas do not

constitute appropriate habitat for Schweinitz's sunflower, smooth coneflower, or Michaux's sumac. Based on the findings of this field review, no additional potential habitat has been added to the project study area since the completion of the protected species surveys conducted in September 2006, and the biological conclusions provided below are still applicable.

A brief description of physical characteristics and a summary of habitat preferences and findings for the above-listed species are as follows:

**Bald eagle (*Haliaeetus leucocephalus*)** – No individuals of this species were observed during the field review that included an area extending more than 660 feet beyond the study area. A large lake (Lake Norman) containing potential hunting and nesting habitat exists approximately 1.5 miles west of the project study area, but the survey revealed no suitable nesting or foraging habitat within the project study area. Therefore, based on the habitat requirements for bald eagle and the lack of available preferred habitat identified within the project study area, the proposed project will have no effect on this species.

**BIOLOGICAL CONCLUSION: N/A**

**Carolina heelsplitter (*Lasmigona decorata*)** – A survey was conducted on September 20, 2006, and included survey of Ramah Creek (Stream F) and two unnamed tributaries (Stream C and Stream I). A second survey was conducted on February 10, 2009, and included survey of Ramah Creek and one unnamed tributary to Caldwell Station Creek (Stream A2). Survey results indicate that freshwater mussels are not within the project study area. It was determined that Streams C, I, and A2 do not provide sufficient habitat for freshwater mussels. Therefore, it was concluded that impacts to these three streams would have "No Effect" on the Carolina heelsplitter. Appropriate habitat for the Carolina heelsplitter was said to be "very limited" within the surveyed reach of Ramah Creek within the project study area, and none were found in 1.5 hours of survey time. However, mussels have previously been found downstream at the next road crossing. Therefore, the Carolina heelsplitter cannot be altogether ruled out in Ramah Creek, and the crossing of Ramah Creek in the project study area is concluded to be "May Affect, Not Likely to Adversely Affect" the Carolina heelsplitter.

**BIOLOGICAL CONCLUSION: May Affect - Not Likely to Adversely Affect**

**Michaux's sumac (*Rhus michauxii*)** – Although potential habitat does exist within the project study area, no individuals of this species were observed during field surveys. Areas of potential habitat for the Michaux's sumac include maintained utility R/W's, including the utility corridor located west of NC-115, roadside R/W's, and other clearings/woodland edges located throughout the project corridor. Surveys of these areas for this species were conducted utilizing pedestrian foot transects. Considering that this species is listed as a historic record, the likelihood that it exists within the project study area is remote. Therefore, the proposed project will have no effect on this species.

**BIOLOGICAL CONCLUSION: No Effect**

**Schweinitz's sunflower (*Helianthus schweinitzii*)** – Records indicate that twelve known populations exist within the County. Correspondence with NCNHP did not indicate any of these populations within close proximity to the proposed project study area (see **Appendix A**).

Areas of potential habitat for the Schweinitz's sunflower include maintained utility R/W's, including the utility corridor located west of NC-115, roadside R/W's, and other clearings/woodland edges located throughout the project corridor. Surveys of these areas for this species were conducted utilizing pedestrian foot transects. Potential habitat does exist within the project study area, but no individuals of this species were observed during field surveys. Therefore, the proposed project will have no effect on this species.

**BIOLOGICAL CONCLUSION: No Effect**

**Smooth coneflower (*Echinacea laevigata*)** – Areas of potential habitat for the smooth coneflower include maintained utility R/W's, including the utility corridor located west of NC-115, roadside R/W's, and other clearings/woodland edges located throughout the project corridor. Surveys of these areas for this species were conducted utilizing pedestrian foot transects. Potential habitat does exist within the project study area, but no individuals of this species were observed during field surveys. Therefore, the proposed project will likely have no effect on this species.

**BIOLOGICAL CONCLUSION: *No Effect***

In addition to on-site field reviews, information was requested from the USFWS and the NCNHP regarding protected species information within the project study area. Correspondence from the NCNHP indicates no record of rare species, significant natural communities, or significant natural heritage areas at the site or within or near the project area (**Appendix A**). A request for concurrence was submitted to the USFWS on December 18, 2006 and following updated mussel surveys conducted in February 2009. In a letter dated May 6, 2009, the USFWS indicates concurrence with the finding that the proposed project design is “not likely to adversely affect” the Carolina heelsplitter in the project area (see **Appendix A**).

## **5.12 Hazardous Materials**

As summarized in **Section 4.3.3**, based on the site reconnaissance, review of historical aerial photographs and topographic maps, and review of the EDR database report, the assessment revealed no evidence of recognized environmental conditions within the project limits.

## 6. AGENCY COORDINATION AND PUBLIC INVOLVEMENT

### 6.1 Agency Coordination

A Start of Study Notification letter was sent to various resource agencies during the initial planning stages of the project. The purpose of the letter was to solicit input concerning known environmental conditions and potential impacts within the corridor, particularly as they relate to social, economic, cultural, physical, or biological resources. Along with representatives of various units within NCDOT, representatives of the following agencies received the Start of Study notification letter:

- Federal Highway Administration
- Federal Aviation Administration
- US Army Corps of Engineers
- US Environmental Protection Agency\*
- Federal Emergency Management Agency
- North Carolina State Historic Preservation Office\*
- North Carolina Division of Water Quality\*
- North Carolina Wildlife Resources Commission
- North Carolina Natural Heritage Program\*
- North Carolina Division of Parks and Recreation
- North Carolina Geological Survey
- Mecklenburg County Commissioners
- Mecklenburg County Parks and Recreation
- Mecklenburg County Emergency Medical Services
- Mecklenburg-Union Metropolitan Planning Organization\*
- Charlotte Area Transit System
- Charlotte-Mecklenburg Schools\*
- Norfolk Southern Railroad

(\*Indicates a response was received and correspondence included in **Appendix A**).

### 6.2 Public Involvement

The project included a public outreach and involvement component. Efforts were made to inform and encourage input from area residents, businesses, and other stakeholders throughout the project development process. **Appendix D** includes copies of meeting notices (newsletters), public involvement materials (workshop #3 handout), and the public comments received throughout the process.

The Town of Huntersville periodically updated its website at project milestones. The Town plans to continue maintaining outreach and communication with the public via the website through project construction.

#### 6.2.1 Citizens Informational Workshops

Three workshops were held at key stages during the project development process. A summary of each workshop is provided below.

**Workshop #1.** A Public Informational Workshop was held on December 12, 2006 at the Town of Huntersville Town Hall. The purpose of this meeting was to announce the initiation of the project, as well as to solicit input from area residents and business owners on the proposed alternatives. Approximately 50 attendees attended. Comments included requests for left and right turns out of the Cambridge Grove neighborhood; a request for traffic signal at Rich Hatchett Road and Northcross

Village entrance (note: a signal has been installed at this location); and a request for realignment of Cambridge Grove Road with Sutters Runs and inclusion of a traffic signal.

**Workshop #2.** The project team met with the public again on May 9, 2007 at the Town of Huntersville Town Hall to provide updated information on the project design and to recommend an alignment. Approximately 114 attendees signed. Comments included a desire for landscaped medians; requests for walkways, sidewalks, and crosswalks; lower speed limit; pedestrian crosswalks at all signalized intersections; requests for traffic signals at Cambridge Grove or Hampton Ridge neighborhood(s) entrances; right turn lanes into all residential developments; noise protection measures; negative impacts of right-in and right-out only entrances at residential subdivisions.

**Workshop #3.** The project team refined the proposed project design to include bicycle and pedestrian provisions (an outside shared lane) and to include a new quadrant-left intersection concept for the NC-73/Holly Point Drive and US-21/Holly Point Drive intersections. The project team presented the preferred alternative to the public on February 26, 2009 at the Town of Huntersville Town Hall. Approximately 60 attendees signed in. Comments and concerns are summarized below.

- Requests to lower the speed limit.
- Requests that pedestrian crossings be clearly marked at all intersections and that pedestrian refuge islands be included in the design.
- Requests for safe pedestrian crossing at Rich Hatchett Road/NC-73 intersection, at Northcross Shopping Center at Holly Point Drive, and from Glenhurst Lane across US-21 into the Northcross Shopping Center.
- Request for dedicated right-turn lane into Hampton Crossing neighborhood.
- Requests for trees to be planted between the curb and sidewalk on both sides of the roadway and in the median, and for replacement of trees removed during project construction. Desire for disease-resistant trees noted.
- Request for longer left-turn lanes for motorists making u-turns.
- Request to install irrigation piping and electrical conduit.
- Requests for 11-foot travel lanes and to reduce sidewalk width to five feet.
- Request to protect residential property values by installing a brick wall from Green Farm neighborhood entrance to Rich Hatchett Road, as well as a request for landscaped berms to ease noise and visual impacts and improve safety at Cameron Grove and Sutters Run neighborhoods.
- Request to not delay this project any longer.
- Request for design to conform to the adopted NC-73 corridor plan, including reduction of speed limit, reduction in travel lane widths and the addition of bicycle lanes.
- Request for better separation between vehicles and bicycles and for coordination with the proposed or existing bicycle lanes on US-21, NC-115, and other segments of NC-73.
- Hampton Ridge residents requested that left-turning, turn-around, and drive-thru traffic be routed to Cambridge Grove neighborhood entrance instead of Hampton Ridge neighborhood entrance (Hampton Crossing Drive).
- Hampton Ridge resident requested traffic data for amount of traffic that would utilize Hampton Crossing Drive under the proposed plan.
- Hampton Ridge resident expressed concern for crossing two lanes of traffic and potential conflicts with u-turn traffic in order to go westbound on NC-73 from Hampton Crossing Drive. Suggested left-turn options at Cambridge Grove Drive and Sutters Run instead of at Hampton Crossing and Green Farms neighborhoods.
- Request to consider the impact that would be caused to businesses by eliminating left turns at the NC-73/US-21 intersection.

- Concern that project is being done too quickly.
- Requests to study existing and potential new traffic signals at the Holly Point/US-21 intersection and at the NC-73/Rich Hatchett Road/Northcross Village intersection, as well as the feasibility of allowing u-turns on Holly Point Drive.
- Request for dedicated turning and thru lanes on northbound Rich Hatchett Road.
- Concern about the efficiency of the proposed quadrant-left intersection and how that would affect Holly Point Drive businesses and traffic.
- Request to limit home owner impact by limiting the construction easement along Cambridge Grove Drive.

### **6.2.2 Small Group Meetings**

Several stakeholder or “small group meetings” were held in order to focus in on and discuss the concerns of local groups. Summaries of these small group meetings are included in **Appendix D**.

**Rich Hatchett Community (May 9, 2007).** The project team met with the Rich Hatchett Community, prior to the Public Informational Workshop. Seven attendees were present and one comment sheet was received. Residents requested a signal at NC-73/Rich Hatchett Road intersection (note: this signal has been installed since that meeting), as turning movements from Rich Hatchett Road are currently very dangerous due to traffic volumes. Residents also expressed concern with the amount of cut-through traffic utilizing Rich Hatchett Road to access NC-73 and the Northcross shopping center. Requests to install speed bumps, sidewalks, warning signs, and to reduce the speed limit on Rich Hatchett Road were discussed. The Town of Huntersville staff has committed to work with the community to address their concerns.

**Holly Point Drive Businesses (February 26, 2009).** The project team met with business representatives from the Holly Point Drive business area regarding the proposed quadrant-left intersection concept for the NC-73/Holly Point Drive and US-21/Holly Point Drive intersections. The meeting was attended by 21 business representatives, including those from the following businesses:

- |                              |                                     |
|------------------------------|-------------------------------------|
| • Dr. Thomas A. Brown, DMO   | • HGI                               |
| • Pace Development Group     | • Chili's                           |
| • Huntington Learning Center | • North County Regional Library     |
| • Bob Evans                  | • SunTrust Bank                     |
| • Cogdell Spencer Advisors   | • Baker and Baker                   |
| • O'Charley's                | • Southeast Children's Urology      |
| • Bojangles                  | • NCMP                              |
| • Gallant Properties         | • Country Suites Hotel              |
| • Mattress Firm              | • Intercoastal Group/Country Suites |
| • Merifield Partners         | Hotel                               |

Following an overview of the project history, an explanation of the operation and efficiencies of quadrant-left intersection was provided. Business owners asked questions and expressed concerns regarding increased traffic volumes, decrease in access, the difficulty for I-77 traffic in reaching their businesses, potential confusion by those who do not live/work in the area, conflicts with existing bus stops, elimination/relocation of driveways to undesirable locations, and improving the overall road network (connections via Rich Hatchett Road or the ancillary roads near the Carolinas Health Care System facility and improvements to the I-77 interchange).

## 7. REFERENCES

### **NCDOT**

*Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina.* NCDOT.

*2009-2015 State Transportation Improvement Program.* NCDOT.

### **Huntersville**

*Neighborhood Plan for the Rich Hatchett Road Community.* Town of Huntersville Planning Department and Rich Hatchett Road Community. 1998.

*NC-73 (Sam Furr Road) Small Area Land Use and Economic Development Plan.* Prepared by Design Collective, Inc. 2005.

*NC-73 (Sam Furr Road) Transportation/Land Use Corridor Plan.* Prepared by HNTB. 2004.

*NC-73 (Sam Furr Rd) / US-21 Transportation and Land Use Vision Small Area Plan.* Prepared by Urban Design Associates. 2006.

### **Other**

*Capacity Analysis for the Widening of NC-73 (Sam Furr Road) (Quadrant Roadway).* Prepared by HNTB. March 2008.

*Community Impact Assessment: A Quick Reference for Transportation.* FHWA Office of Environment and Planning. September 1996.

*MUMPO 2030 Long Range Transportation Plan and Air Quality Conformance Determination.* May 2007.

Charlotte-Mecklenburg Schools (Email Communication, Kevin Devore). (March 5, 2009).

US Census Bureau Data ([http://factfinder.census.gov/home/saff/main.html?\\_lang=en](http://factfinder.census.gov/home/saff/main.html?_lang=en)).

### **Technical Reports for STIP R-2632 (NC-73 (Sam Furr Road) Widening**

*Air Quality Analysis Report.* Prepared by The Louis Berger Group. February 2007.

*Categorical Exclusion - NC-73 (Sam Furr Road) Widening from US-21-NC-73 to SR-2427.* Prepared by PBS&J. 1993.

*Community Impact Assessment.* Prepared by STV/RWA. May 2007.

*Environmental Impact Evaluation (Hazardous Materials Report).* Prepared by STV/RWA. October 2006, Updated November 2008.

*Freshwater Mussel Surveys Report.* Prepared by The Catena Group. (Updated) February 2009.

*Highway Traffic Noise/Construction Noise Analysis.* Prepared by The Louis Berger Group, Inc. June 2007 and March 2009 (Addendum).

*Historic Architectural Resources Survey Report.* Prepared by The Louis Berger Group, Inc. January 2006.

*Natural Resources Technical Report.* Prepared by STV/RWA. March 2009.

*Preliminary Hydraulics Study.* Prepared by STV/RWA. December 2006, Updated January 2007.

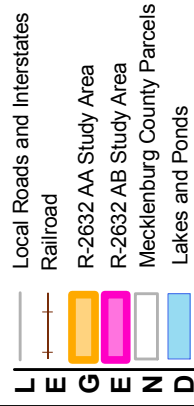
*Traffic Analysis Report.* Prepared by STV/RWA. March 2009.



Figure 1

## PROJECT LOCATION

**NC-73**  
**(Sam Furr Road) Widening**  
**Huntersville, NC**  
**Mecklenburg County**  
**STIP No. R-2632**



Source: Charlotte-Mecklenburg GIS (2008)

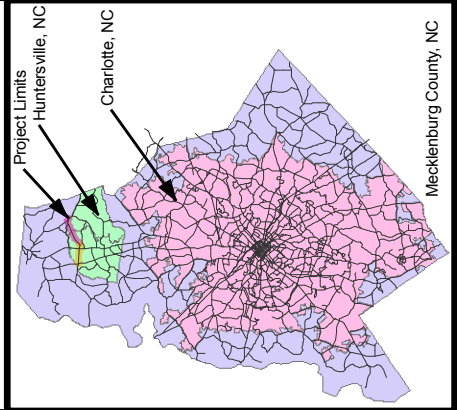
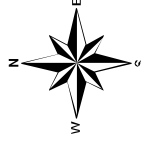


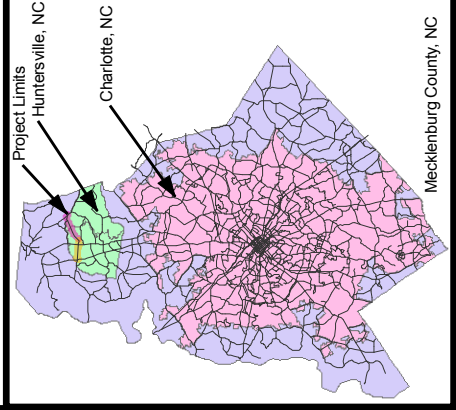
Figure 2

# PROPOSED TYPICAL SECTIONS

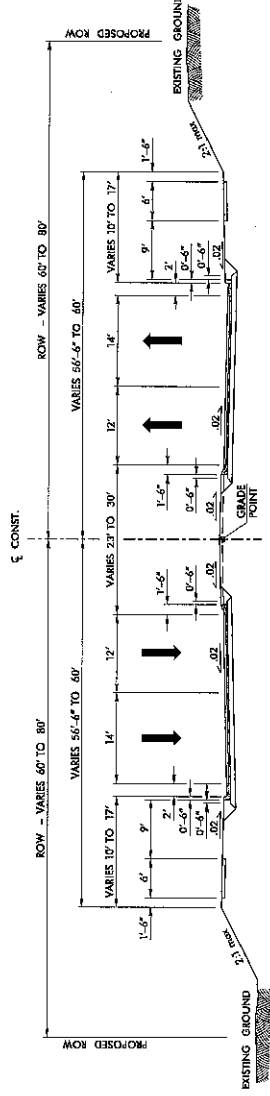
NC-73  
(Sam Furr Road) Widening  
Huntersville, NC  
Mecklenburg County  
STIP No. R-2632



Not to Scale

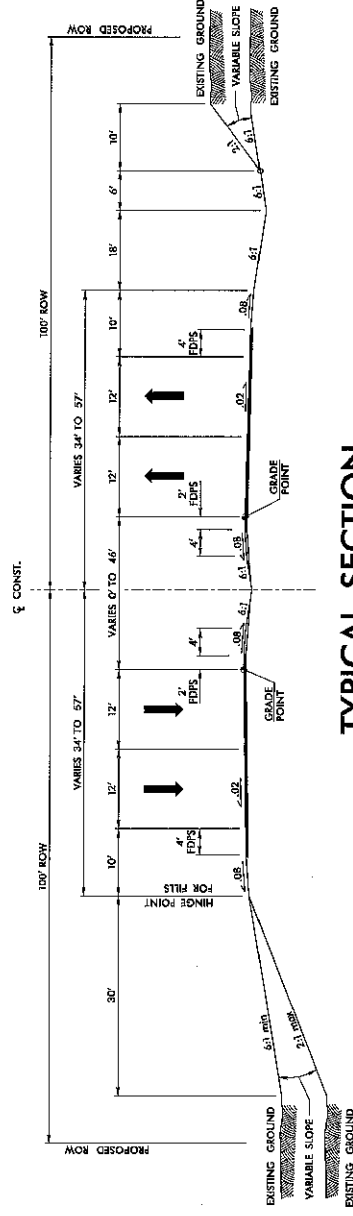


Mecklenburg County, NC



## TYPICAL SECTION

R-2632AA  
FROM WEST OF US 21 TO EAST OF NC 115



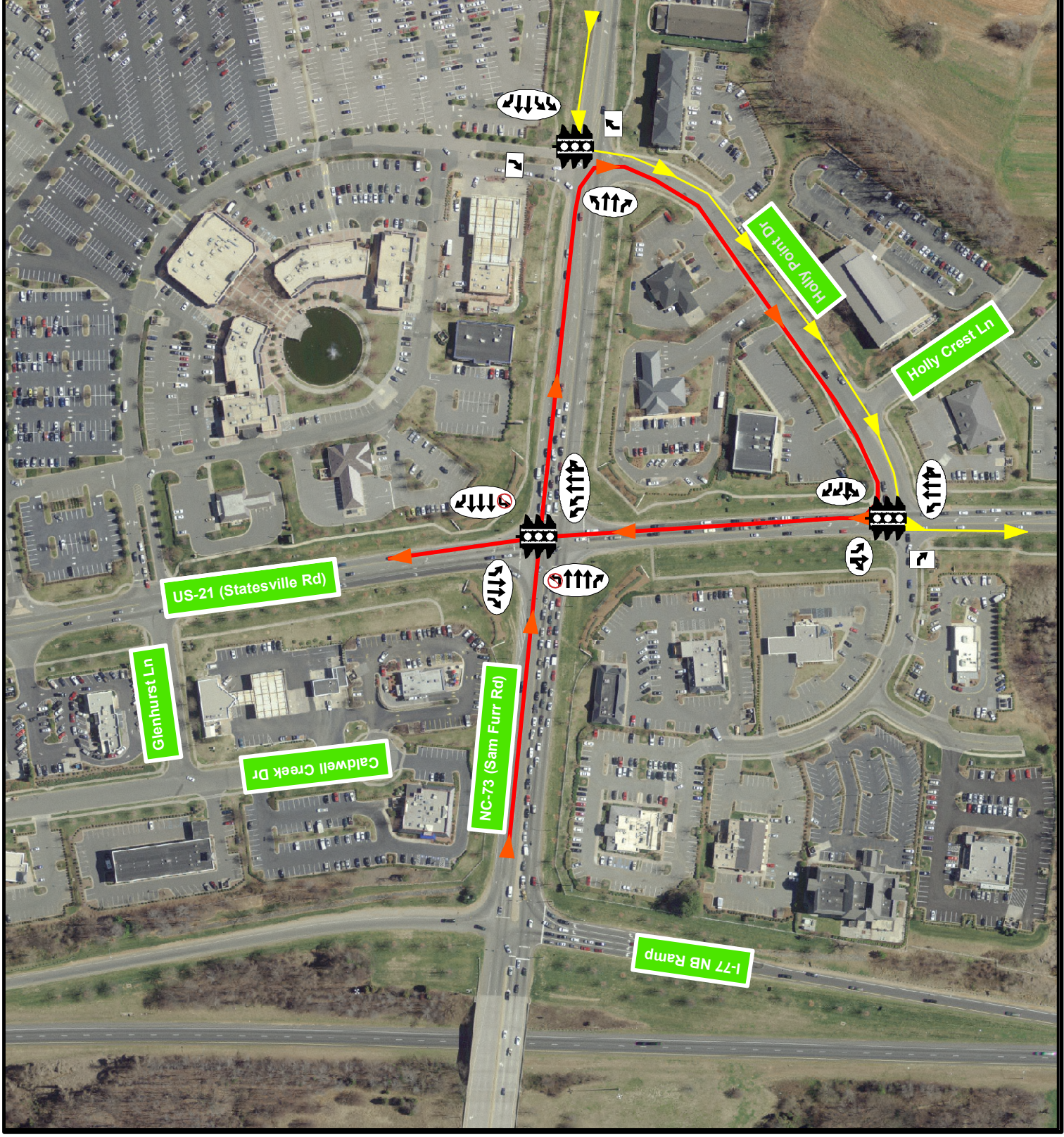
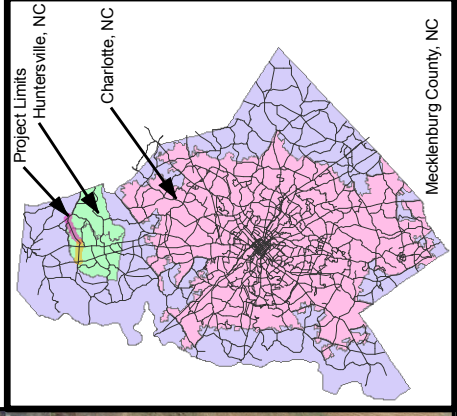
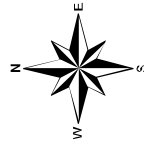
## TYPICAL SECTION

R-2632AB  
FROM EAST OF NC 115 TO WEST OF RAMAH CHURCH ROAD

Figure 3

PROPOSED  
QUADRANT  
ROADWAY  
INTERSECTION
















NC-73  
(Sam Furr Road) Widening  
Huntersville, NC  
Mecklenburg County  
STIP No. R-2632

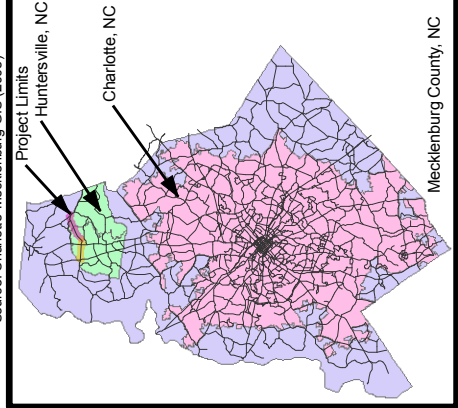
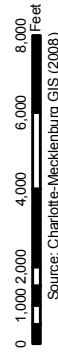


## COMMUNITY RESOURCES

**(Sam Furr Road) Widening  
Huntersville, NC  
Mecklenburg County**



- | LEGEND  |                             |
|---|-----------------------------|
|  | Church Properties           |
|  | Schools                     |
|  | Libraries                   |
|  | Fire Stations               |
|  | Police Departments          |
|  | North Carolina Bike Route 6 |
|  | Parks                       |
|  | Census Tract 63.01          |
|  | Census Tract 64.01          |
|  | Census Tract 64.02          |
|  | Demographic Area            |
|  | R-2632 AA Study Area        |
|  | R-2632 AB Study Area        |
|  | Lakes and Ponds             |
|  | Mecklenburg County Parcels  |



C1 - Heritage Church of Davidson	C2 - Gethsemane Baptist Church	C3 - African Methodist Episcopal	C4 - Davidson Presbyterian	C5 - Davidson Methodist Church	C6 - Calvary Presbyterian	C7 - Union Bethel AWE Zion Church	C8 - First Baptist Church	C9 - Cornelius Presbyterian Church	C10 - Church of GOD at Cornelius	C11 - Praise of His Glory Church	C12 - Lake Norman Church of Christ	C13 - Tri-City	C14 - Columbus CHPL Presbyterian	C15 - East Huntersville Baptist	C16 - Huntersville United	C17 - First Baptist Church of	C18 - Huntersville ARP Church	C19 - The Church of GOD of the Bible	C20 - Church of GOD Huntersville	C21 - Ramoth Presbyterian	F1 - Davidson VFD	F2 - Cornelius VFD	F3 - North Meck Rescue Squad	F4 - Huntersville VFD	L1 - Davidson Branch	L2 - Cornelius Branch	L3 - Huntersville Branch	L4 - North Country Regional Library	LE1 - Davidson Police Department	LE2 - Cornelius Police Department	LE3 - Huntersville Police Department	P1 - Allison Farm Property	P2 - Brackett Bluff Nature Preserve	P3 - Patrick Johnson Park	P4 - South Prong Rocky River Greenway	P5 - North Mecklenburg District Park	P6 - Robert Caldwell Bradford District Park	P7 - White Property	P8 - Ramoth Church Property	P9 - Oehler Property	S1 - Davidson I.B. MS	S2 - Davidson ES	S3 - Cornelius ES	S4 - Huntersville ES	S5 - Ralley Road MS
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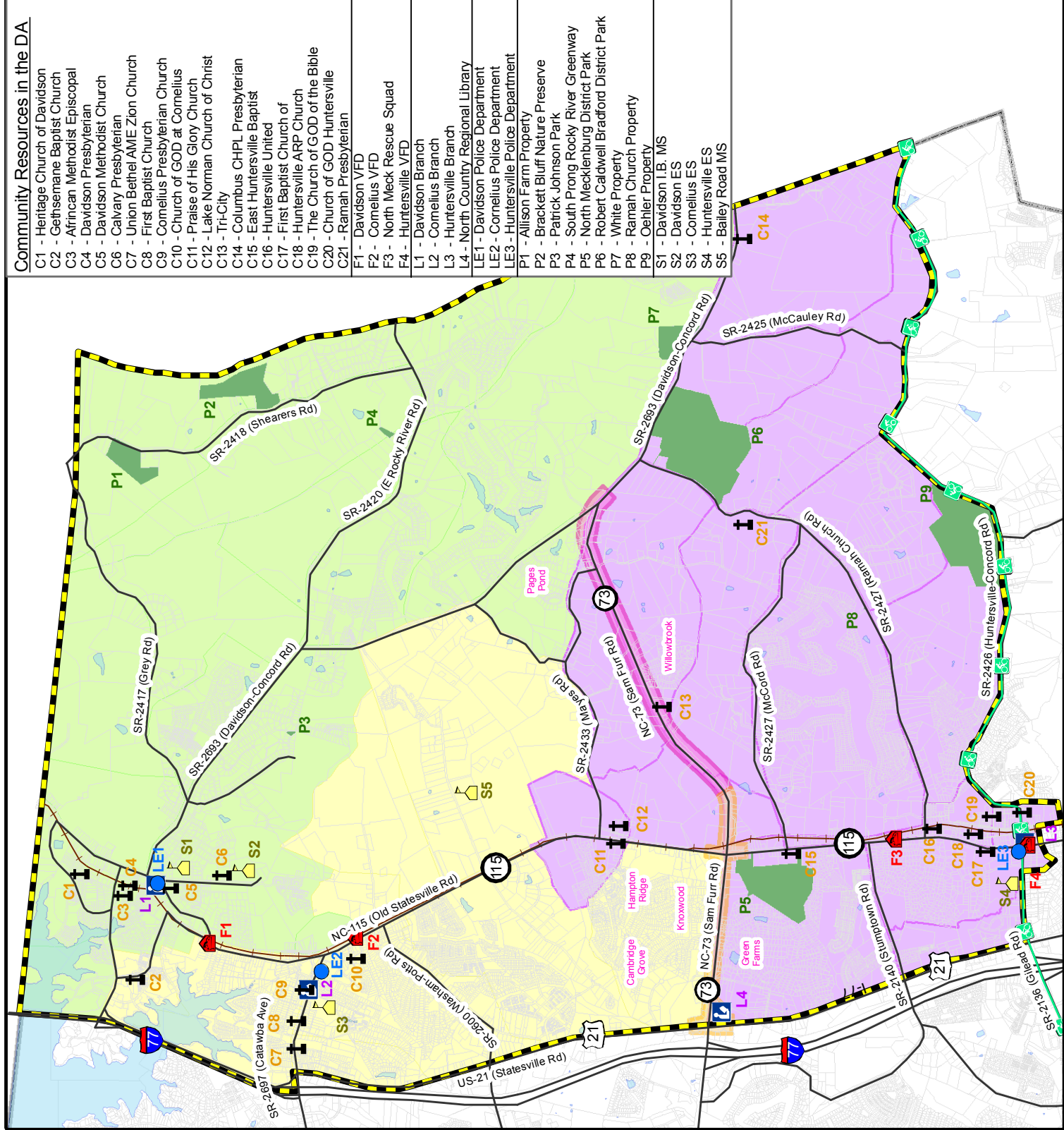


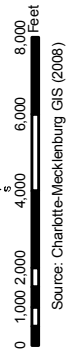
Figure 5

# CATS BUS ROUTES

NC-73  
(Sam Furr Road) Widening  
Huntersville, NC  
Mecklenburg County  
STIP No. R-2632



- LEGEND**
- CATS Bus Stops
  - CATS Route 99
  - CATS Route 98
  - CATS Route 97
  - CATS Route 96
  - CATS Route 83X
  - CATS Route 77X
  - CATS Route 48X
  - Demographic Area
  - R-2632 AA Study Area
  - R-2632 AB Study Area
  - Mecklenburg County Parcels
  - Lakes and Ponds



Source: Charlotte-Mecklenburg GIS (2008)

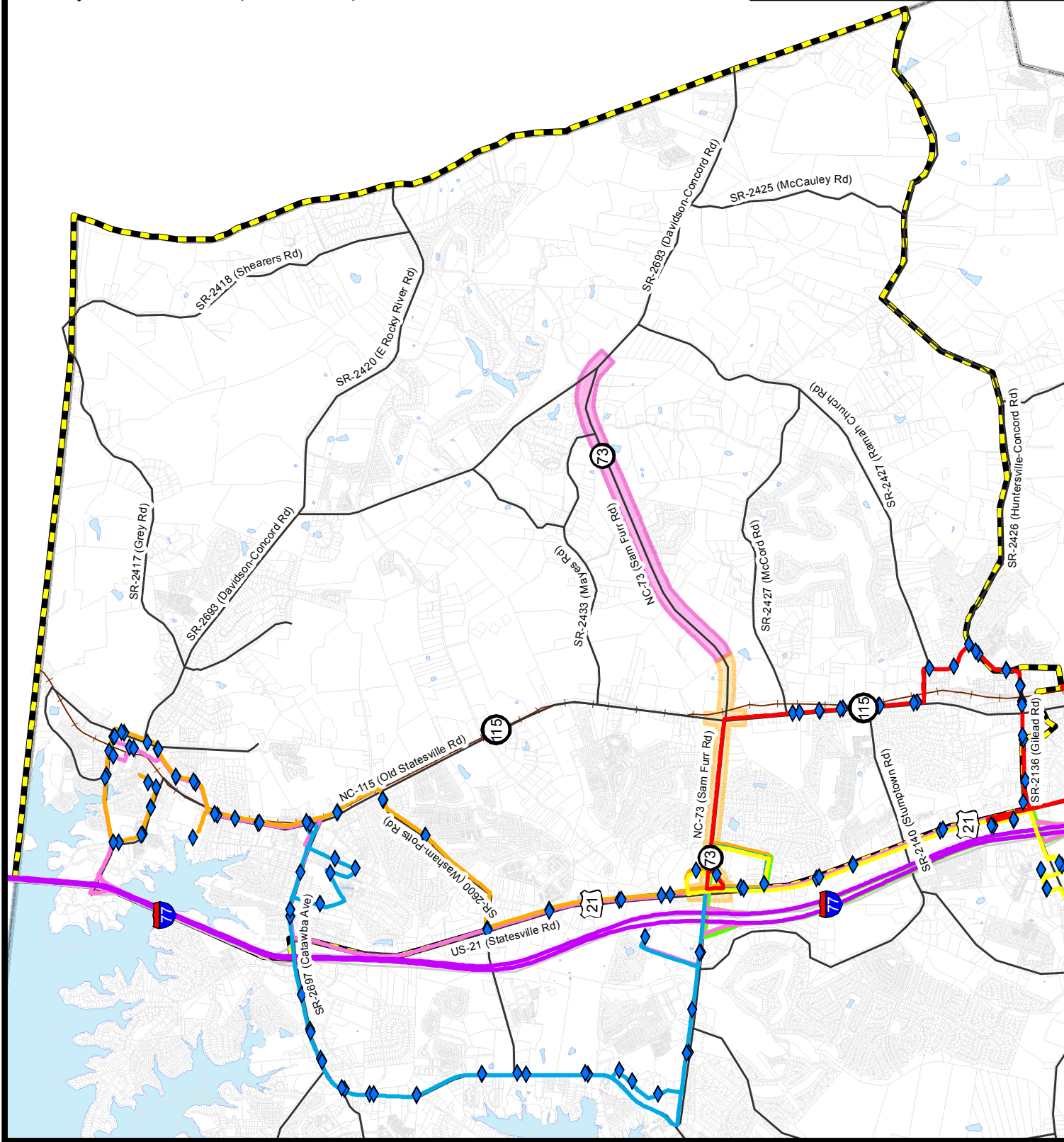
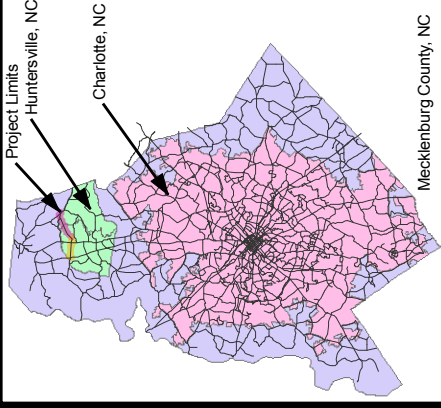


Figure 6a

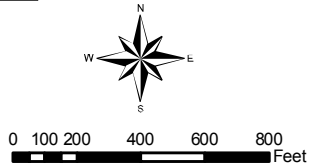
NATURAL  
RESOURCES

NC-73  
(Sam Furr Road) Widening  
Huntersville, NC  
Mecklenburg County

STIP No. R-2632



- LEGEND**
- Floodway
  - Floodplain
  - Lakes and Ponds
  - Wetlands
  - STIP R-2632 Alignment
  - Streams
  - Agricultural Crop Field
  - Commercial
  - Industrial
  - Institutional
  - Maintained Field
  - Maintained and Disturbed Roadside
  - Mixed Hardwood Forest
  - Mixed Pine/Hardwood Forest
  - Overgrown Field
  - Pasture
  - Residential
  - Successional Forest



Source:  
Charlotte-Mecklenburg GIS (2008),  
STV Field Survey (2006, 2008 & 2009)

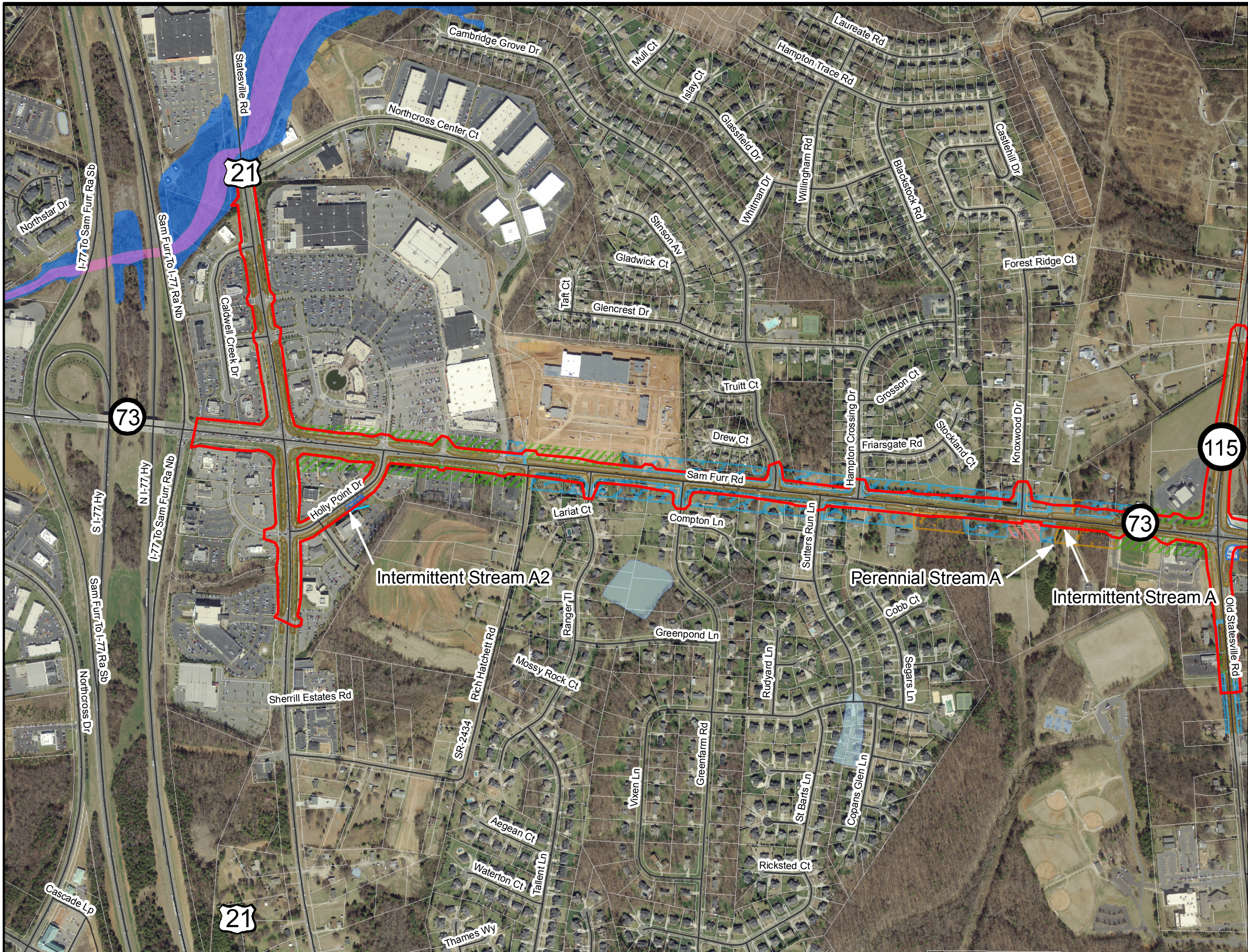
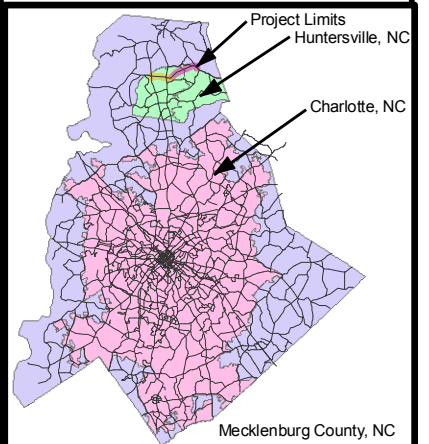


Figure 6b

NATURAL  
RESOURCES

NC-73  
(Sam Furr Road) Widening  
Huntersville, NC  
Mecklenburg County

STIP No. R-2632



- LEGEND**
- Floodway
  - Floodplain
  - Lakes and Ponds
  - Wetlands
  - STIP R-2632 Alignment
  - Streams
  - Agricultural Crop Field
  - Commercial
  - Industrial
  - Institutional
  - Maintained Field
  - Maintained and Disturbed Roadside
  - Mixed Hardwood Forest
  - Mixed Pine/Hardwood Forest
  - Overgrown Field
  - Pasture
  - Residential
  - Successional Forest



0 100 200 400 600 800  
Feet

Source:  
Charlotte-Mecklenburg GIS (2008),  
STV Field Survey (2006, 2008 & 2009)

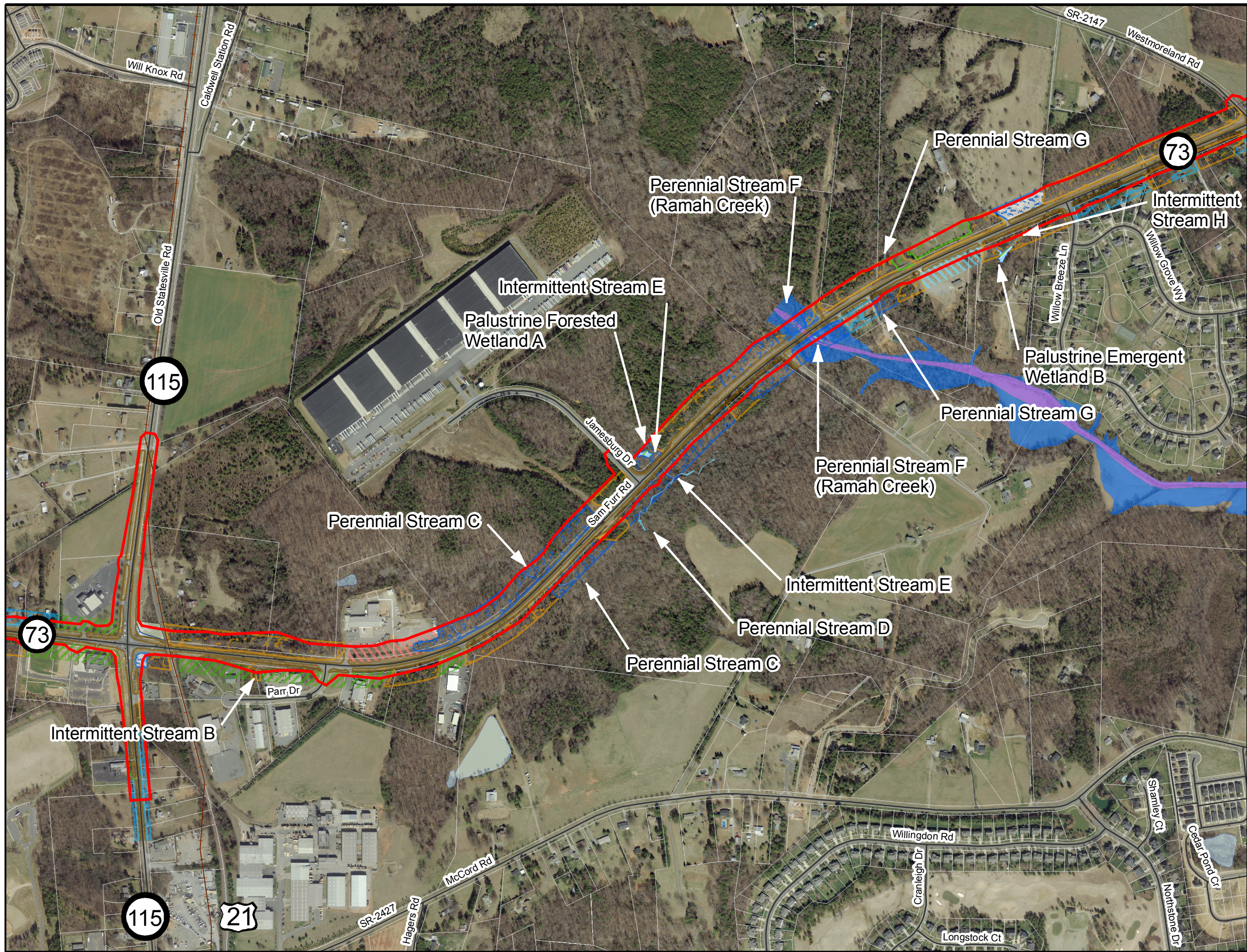
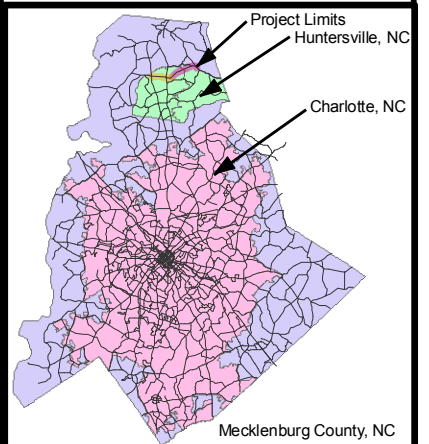


Figure 6c

NATURAL  
RESOURCES

NC-73  
(Sam Furr Road) Widening  
Huntersville, NC  
Mecklenburg County

STIP No. R-2632

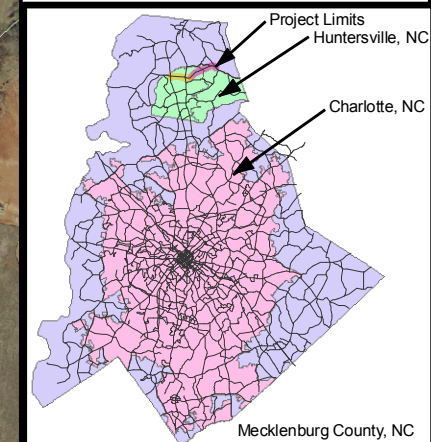


- L  
E  
G  
E  
N  
D**
- Floodway
  - Floodplain
  - Lakes and Ponds
  - Wetlands
  - STIP R-2632 Alignment
  - Streams
  - Agricultural Crop Field
  - Commercial
  - Industrial
  - Institutional
  - Maintained Field
  - Maintained and Disturbed Roadside
  - Mixed Hardwood Forest
  - Mixed Pine/Hardwood Forest
  - Overgrown Field
  - Pasture
  - Residential
  - Successional Forest



0 100 200 400 600 800  
Feet

Source:  
Charlotte-Mecklenburg GIS (2008),  
STV Field Survey (2006, 2008 & 2009)



# **Appendix A**

## **Agency Coordination**



Rec'd 10-12-06

Michael F. Easley, Governor

William G. Ross Jr., Secretary  
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director  
Division of Water Quality

October 10, 2006

## MEMORANDUM

**To:** Mr. Brian Dehler, P.E., Project Manager, STV/Ralph Whitehead Associates  
Aldie Whitmore, P.E., Project Manager, NCDOT Division 10

**From:** Polly Lespinasse, NC Division of Water Quality, Mooresville Regional Office

**Subject:** Scoping Comments on Proposed Improvements to NC 73 from West of US 21 to East of SR 2693  
(Davidson-Concord Road) in Mecklenburg County, TIP R-2632A

Please reference your correspondence dated September 29, 2006 in which you requested comments for the above referenced project. Preliminary analysis of the project reveals the potential for multiple impacts to perennial streams and jurisdictional wetlands in the project area. More specifically, impacts to:

Stream Name	River Basin	Stream Classification	Stream Index Number
Ramah Creek	Yadkin	C	13-17-4-4

Further investigations at a higher resolution should be undertaken to verify the presence of other streams and/or jurisdictional wetlands in the area. In the event that any jurisdictional areas are identified, the Division of Water Quality requests that the consultant and NCDOT consider the following environmental issues for the proposed project:

### General Project Comments:

1. The environmental document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping. If mitigation is necessary as required by 15A NCAC 2H.0506(h), it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. Appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.
2. Environmental assessment alternatives should consider design criteria that reduce the impacts to streams and wetlands from storm water runoff. These alternatives should include road designs that allow for treatment of the storm water runoff through best management practices as detailed in the most recent version of NC DWQ *Stormwater Best Management Practices*, such as grassed swales, buffer areas, preformed scour holes, retention basins, etc.
3. After the selection of the preferred alternative and prior to an issuance of the 401 Water Quality Certification, the applicant is respectfully reminded that they will need to demonstrate the avoidance and minimization of impacts to wetlands (and streams) to the maximum extent practical. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 1 acre to wetlands. In the event that mitigation is required, the mitigation plan should be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as wetland mitigation.

One  
North Carolina  
*Naturally*

4. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation is required, the mitigation plan should be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as stream mitigation.
5. DWQ is very concerned with sediment and erosion impacts that could result from this project. The applicant should address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.
6. If a bridge is being replaced with a hydraulic conveyance other than another bridge, DWQ believes the use of a Nationwide Permit may be required. Please contact the US Army Corp of Engineers to determine the required permit(s).
7. If the old bridge is removed, no discharge of bridge material into surface waters is allowed unless otherwise authorized by the US ACOE. Strict adherence to the Corps of Engineers guidelines for bridge demolition will be a condition of the 401 Water Quality Certification.
8. Bridge supports (bents) should not be placed in the stream when possible.
9. Whenever possible, the DWQ prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the streambanks and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allow for human and wildlife passage beneath the structure, do not block fish passage and do not block navigation by canoeists and boaters.
10. Bridge deck drains should not discharge directly into the stream. Stormwater should be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of NC DWQ *Stormwater Best Management Practices*.
11. If concrete is used during construction, a dry work area should be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete should not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
12. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas should be seeded or mulched to stabilize the soil and appropriate native woody species should be planted. When using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.
13. Placement of culverts and other structures in waters, streams, and wetlands shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by DWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NC DWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
14. If multiple pipes or barrels are required, they should be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

15. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3494/Nationwide Permit No. 6 for Survey Activities.
16. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.
17. All work in or adjacent to stream waters should be conducted in a dry work area unless otherwise approved by NC DWQ. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures should be used to prevent excavation in flowing water.
18. Sediment and erosion control measures should not be placed in wetlands and streams.
19. Borrow/waste areas should avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas could precipitate compensatory mitigation.
20. While the use of National Wetland Inventory (NWI) maps and soil survey maps are useful tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.
21. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.
22. In most cases, the DWQ prefers the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed and restored to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. Tall fescue should not be used in riparian areas.
23. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.

Thank you for requesting our input at this time. The applicant is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Polly Lespinasse at (704) 663-1699.

cc: Steve Lund, US Army Corps of Engineers, Asheville Field Office  
Chris Militscher, Environmental Protection Agency  
Marla Chambers, NC Wildlife Resources Commission  
Marella Buncick, US Fish and Wildlife Service  
Sonia Gregory, DWQ Central Regional Office  
File Copy

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

RECEIVED

OCT 12 2006

DIVISION ENGINEER TENTH DIVISION

Const. \_\_\_\_\_ Maint. \_\_\_\_\_  
Oper. \_\_\_\_\_ Plan. *AW*MICHAEL F. EASLEY  
GOVERNORLYNDO TIPPETT  
SECRETARY

MEMORANDUM TO: Aldie Whitmore, P. E., Project Manager  
NCDOT/Division 10

FROM: Greg Perfetti, P. E. *G.R. Perfetti BSC*  
State Bridge Design Engineer

DATE: October 10, 2006

SUBJECT: Comments on NC 73 Improvements from West of US 21 to East of  
SR 2693 (Davidson-Concord Road)  
TIP No. R-2632A

Structure Design has the following comments in response to the September 29, 2006 solicitation for input concerning the proposed NC 73 Improvements.

In 1993 the scope of this project was to maintain all intersections with NC 73 including the intersection with the Norfolk Southern Railroad line as at-grade intersections. There were three major stream crossings identified at that time. The pipe at Ramah Creek was proposed to be replaced with a single 6' x 5' RCBC on a slightly modified alignment. The other pipes were to be extended.

Changing the existing roadway intersections or the Norfolk Southern rail crossing from at-grade to grade separations or replacing the existing piped stream crossings with bridges will greatly increase both the scope and cost of this project.

If you have any additional questions or comments, please contact Betsy Cox, Structure Design Project Engineer at (919) 250-4073.

GRP/BSC/snj

Cc: Ricky Keith, P. E.  
Allen Raynor, Jr., P. E.



## North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

October 12, 2006

William G. Ross Jr., Secretary

Mr. Brian D. Dehler  
STV/Ralph Whitehead Associates  
1000 West Morehead Street, Suite 200  
Charlotte, NC 28208

Subject: NC 73 Improvements – from West of US 21 to East of SR 2693 (Davidson-Concord Road);  
Mecklenburg County  
TIP No. R-2632A

Dear Mr. Dehler:

The Natural Heritage Program has no record of rare species, significant natural communities, or significant natural heritage areas at the site nor within a mile of the project area. Although our maps do not show records of such natural heritage elements in the project area, it does not necessarily mean that they are not present. It may simply mean that the area has not been surveyed. The use of Natural Heritage Program data should not be substituted for actual field surveys, particularly if the project area contains suitable habitat for rare species, significant natural communities, or priority natural areas.

You may wish to check the Natural Heritage Program database website at [www.ncnhp.org](http://www.ncnhp.org) for a listing of rare plants and animals and significant natural communities in the county and on the topographic quad map. Alternatively, the NC Center for Geographic Information and Analysis (CGIA) provides digital Natural Heritage data online on a cost recovery basis. Subscribers can get site specific information on GIS layers with Natural Heritage Program rare species occurrences and Significant Natural Heritage Areas. The CGIA website provides Element Occurrence (EO) ID numbers (instead of species name), and the data user is then encouraged to contact the Natural Heritage Program for detailed information. This service allows the user to quickly and efficiently get site specific NHP data without visiting the NHP workroom or waiting for the Information Request to be answered by NHP staff. For more information about data formats, pricing structure and ordering procedures, visit <http://www.cgia.state.nc.us/cgdb/datalist.html>, or call CGIA Production Services at (919) 733-2090.

Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.

Sincerely,

*Harry E. LeGrand, Jr.*  
Harry E. LeGrand, Jr., Zoologist  
Natural Heritage Program

**Jennifer Schwaller**

---

**From:** Brian Dehler  
**Sent:** Thursday, October 26, 2006 8:08 AM  
**To:** Karen Capps; Jennifer Schwaller  
**Subject:** FW: NC 73 Improvements TIP NO R-2632A

FYI - I saved the attachment to the project folder.

-----Original Message-----

**From:** Suzanne Harkey [mailto:s.harkey@cms.k12.nc.us]  
**Sent:** Wednesday, October 25, 2006 12:34 PM  
**To:** brian.dehler@stvinc.com; awhitmore@dot.state.nc.us  
**Cc:** 'Guy Chamberlain'; c.stamper@cms.k12.nc.us  
**Subject:** NC 73 Improvements TIP NO R-2632A

Dear Project Managers,

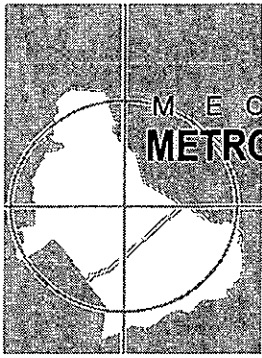
I am writing for the Charlotte Mecklenburg Schools Transportation Office regarding the Hwy 73 expansion project in Mecklenburg County. Widening the proposed segments of Hwy 73 would be a tremendous help to our department and residents and might even allow us to get to our school locations in less time since the traffic congestion is terrible. I have identified a minimum of 37 buses currently on Hwy 73 in the AM and 36 in the PM. An excel spreadsheet is attached identifying the bus number and the school the bus serves. I have also placed a print screen of the school locations we have around this area. If I can be of further assistance please let me know.

Sincerely,

Suzanne Harkey

*Suzanne Harkey*

Charlotte Mecklenburg Schools  
Routing & Scheduling Specialist  
Phone: 980-343-6715



MECKLENBURG - UNION  
**METROPOLITAN PLANNING ORGANIZATION**

600 East Fourth Street  
Charlotte, North Carolina 28202-2853  
704-336-2205  
www.mumpo.org

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NCDOT

PINEVILLE

STALLINGS

UNION  
COUNTY

WAXHAW

WEDDINGTON

WESLEY CHAPEL

WINGATE

October 31, 2006

Brian D. Dehler, PE, Project Manager  
STV/Ralph Whitehead Associates  
1000 West Morehead Street, Suite 200  
Charlotte, North Carolina 28208

SUBJECT: R-2632A

NC 73 Improvements: West of US 21 to East of SR 2693

Dear Mr. Dehler:

Thank you for your letter of September 29, 2006 requesting the comments from the Mecklenburg-Union Metropolitan Planning Organization (MUMPO) on the Subject project. Listed below are our comments:

1. NC Highway 73 is part of the North Carolina Strategic Highway Corridor system adopted by the Board of Transportation in September 2004 as part of the Statewide Transportation Plan. The planning document should be coordinated with this systemic goal. We suggest coordination with NCDOT's Systems Planning Group headed by Terry Arellano.
2. The NC 73 corridor is vital to the mobility needs and economic well-being of northern Mecklenburg County and beyond, but the high levels of congestion compromise both. A congestion management analysis should be a component of the updated Planning Report/Categorical Exclusion. We recommend coordination with Laura Cove of NCDOT's Congestion Management & Signing Unit.
3. The area in question was analyzed as a part of the NC 73 Transportation & Land Use Corridor Plan. It is recommended that this document be analyzed as a part of your scoping of this project. Furthermore, an NC 73 Council of Planning (COP) was formed to coordinate management of the Plan. We suggest coordination with Bjorn Hansen of the Centralina Council of Governments.
4. The project crosses the "O" line of the Norfolk Southern Railroad. While a relatively insignificant volume uses the line at this point, the "O" line is the alignment of the Charlotte Area Transit System's (CATS) proposed North Transit Corridor. Due the profound changes that will result, it is strongly

recommended that you work closely with CATS' North Corridor staff. In particular, it is recommended that a final determination be made regarding grade-separating NC 73 and the rail line, or grade-separating NC 73 and both the rail line and NC 115.

5. Planning efforts should closely examine the multi-modal opportunities and constraints associated with the NC 73 corridor. These efforts should include, but not be limited to, the following:
  - Examining opportunities to give priority to feeder bus service headed to CATS' proposed Caldwell stop on the North Corridor, located just north of the intersection of NC 73 and NC 115.
  - Bicycle and pedestrian travel along the entire corridor, as well as the feasibility of creating effective links between adjacent neighborhoods and nearby shopping centers, the public library, the Caldwell North Corridor station, etc. In accord with MUMPO policy, bicyclists and pedestrians must be accommodated with this project.
6. Huntersville's NC 73/US 21 Small Area Plan should be reviewed. This plan was adopted in late 2005 and was an in-depth examination of the area. In particular, additional crossings of I-77 proposed by this plan would help reduce localized traffic on NC 73. The cooperation of the Town of Cornelius is essential to the implementation of these crossings.
7. The Rich Hatchett Road Community is a century-old African-American community located just east of the intersection of NC 73 and US 21. Depending on construction options in the vicinity of the US 21 intersection, there are potential environmental justice concerns.
8. There is a large electrical substation that we believe is owned by Energy United located on the south side of NC 73 just west of NC 115. Options of moving the road alignment versus moving the substation should be explored.

cc: Alden Whitmore, PE, Project Manager, NCDOT  
Jim Humphrey, PE, TCC Chairman  
Bill Coxe, TCC Vice-Chairman  
Barry Mosley, MUMPO  
Stuart Basham, MUMPO



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

November 2, 2006

**TO:** Brian D. Dehler, PE  
STV/Ralph Whitehead Associates

**FROM:** Tahir Hameed  
Traffic Safety Unit

**SUBJECT:** NC 73-Sam Furr Road from I-77 to Secondary Route 2693 (Davidson-Concord Road) in Mecklenburg County (R-2632A)

We are providing these comments as part of a safety review for the above referenced project. One of the proposed alternatives is to widen NC 73 to a multi-lane facility (4 to 6 lanes) for an approximate length of 4.21 miles. To evaluate the safety of the roadway, a crash analysis was completed for NC 73. The crash analysis consisted of a maximum Y-line of 0 feet from the section. A total of 292 crashes were reported along this location between August 1, 2003 and July 31, 2006. The typical section where the project is located has rolling terrain, is undivided, has a pavement width varying from 24 feet to 78 feet and the speed limit varies from 35 mph to 55 mph. The 2003 annual average daily traffic (AADT) for this section was estimated at 21,200 vehicles per day, which equates to a total vehicle exposure rate of 97.82 million vehicle miles (MVM) traveled.

For crash rate purposes, this location can be classified as a 2-Lane Undivided Urban North Carolina (NC) Route. The following table shows the comparison of the crash rates for the analyzed section of NC 73 versus the 2003-2005 statewide crash rates and the calculated critical rate. The total crash rate for the analyzed section exceeded the statewide crash rate due to over-representation of rear end and frontal impact (which generally includes angle and turning crashes) type crashes.

Rate	Crashes	Crashes per 100 MVM	Statewide Rate <sup>1</sup>	Critical Rate <sup>2</sup>
Total	292	298.51	280.39	308.75
Fatal	0	0.00	0.83	2.86
Non-Fatal	80	81.78	96.48	113.33
Night	44	44.98	55.31	68.19
Wet	36	36.80	48.52	60.62

<sup>1</sup> 2003-2005 Statewide Crash rate for 2-Lane Undivided Urban North Carolina (NC Route)

<sup>2</sup> Based on the statewide crash rate (95% level of confidence). The critical crash rate (is a statistically derived value against which a calculated rate can be compared to see if the rate is above an average far enough so that something besides chance must be the cause) is used to denote statistical significance.

Rear end crashes and frontal impact crashes comprised 53% and 31% of the overall crashes respectively. Lane departure crashes accounted for 5% of overall crashes, wet pavement crashes accounted for 12% of overall crashes and night crashes accounted for 15% of overall crashes.

Intersections with significant crash history are noted below.

#### **I-77 Northbound Ramps**

This signalized intersection experienced a total of 66 crashes during the study period analyzed. Rear end crashes accounted for 44% and frontal impact crashes accounted for 38% of overall crashes. Drivers' failure to yield for traffic and congestion seem to be the prime contributors to these crashes.

#### **US 21-Statesville Road**

There were 41 crashes reported at this signalized intersection. Rear end crashes are the predominant type of crashes with 73% of the overall crashes. Frontal impact crashes accounted for 12% of the overall crashes and sideswipe same side crashes accounted for 7% of overall crashes. Congestion and drivers' failure to reduce speed are primary causes of the rear end type crashes. The crash reports also revealed that heavy left turning traffic volume did not allow the vehicles exiting from I-77 northbound to merge safely into the exclusive left turn lane, causing the sideswipe same side type crashes.

#### **Holly Point Road**

This is a two-way stop controlled intersection. There were 37 crashes reported at this location. Frontal impact crashes and rear end crashes accounted for 51% and 27% of the overall crashes respectively. The majority of the crashes occurred due to drivers' failure to yield for traffic.

#### **NC 115 -Old Statesville Road**

There were 22 crashes reported at this signalized intersection. Frontal impact crashes accounted for 64% of overall crashes and rear end crashes accounted for 27% of overall crashes.

Assuming current design standards and practices are utilized, the safety recommendations and comments are as follows:

- The project should address the frontal impact crashes with the consideration of upgrading intersection signals. Installation of 12 inch signal lenses with backplates, providing appropriate clearance interval for signals and modifying the existing signal phasing to include permitted-protected turn phases on NC 73 for intersecting Y lines may help to reduce frontal impact crashes.
- The project should consider some type of yield controlled channelization at the intersections and at the driveway locations serving the Northcross Shopping Center. This will direct vehicles through the intersections or specified crossovers and help to reduce the potential conflict points caused by turning vehicles along the section.
- The level of bicycle and pedestrian usage along this section is unknown. There was one pedestrian crash reported during the analyzed study period. The project should determine the level of needs for pedestrians and bicyclists, and address those issues as deemed applicable.
- The installation of new pavement with improved pavement delineation may help to reduce the incidences of wet and night crashes.

If any exceptions are made to current design standards or policies, we request the opportunity to review the exceptions and provide additional comments. If you have any questions concerning the attached analysis, please contact me at [thameed@dot.state.nc.us](mailto:thameed@dot.state.nc.us) or at (919) 715-4046.

TH

Attachments

cc: D. Naylor, PE  
R.A. Mason  
D. Weaver, PE  
B.L. Johnson, PE



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

ATLANTA FEDERAL CENTER

61 FORSYTH STREET

ATLANTA, GEORGIA 30303-8960

November 9, 2006

Gregory J. Thorpe, Ph.D.  
Environmental Management Director  
Project Development and Environmental Analysis Branch  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

Subject: NC 73 (Sam Furr Road) Widening  
Mecklenburg County; TIP No. R-2632A

Dear Dr. Thorpe:

The U.S. Environmental Protection Agency (EPA) Region 4 was requested to review a September 29, 2006, scoping notice provided by STV/Ralph Whitehead Associates. According to the notice, the North Carolina Department of Transportation (NCDOT) and the Federal Highway Administration (FHWA) are proposing to update the planning report and Categorical Exclusion for this proposed 3.6-mile widening project. A copy of the 1993 Categorical Exclusion was provided to EPA for review following our October 4, 2006, e-mail comments on the scoping notice. The cover letter to the scoping notice indicates that there will be no formal interagency scoping meeting for this project. EPA's letter is to provide early planning comments on the proposed action.

The 1993 Categorical Exclusion describes the widening project as both a five-lane undivided section and a four-lane median divided facility. The September 29, 2006, scoping notice describes a multi-lane facility as 4 or 6 lanes, using a best-fit alignment. EPA recognizes that NCDOT and FHWA no longer prefer a 5-lane undivided facility for safety reasons. There have been substantial changes in both NCDOT facility design criteria and environmental requirements since 1993 (e.g., Executive Order 12898, on Environmental Justice).

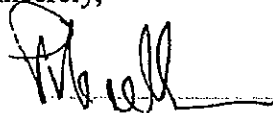
The 1993 Categorical Exclusion identifies several areas of potential environmental impacts, including approximately 2 acres of impact to jurisdictional wetlands and streams. The document cites that there are potentially 19 wetland areas and 11 streams within the proposed right of way for NC 73 (Page 4-17). The 1993 Categorical Exclusion identifies two potential archeological site impacts (i.e., 31MK587 and 31MK594), two endangered species that could be impacted (At a minimum, surveys would need to be updated; M. Buncick, FWS-Asheville Field Office; personal communication 11/8/06), and at least 23 sensitive noise receptors impacted. Of the 23 impacted receptor sites (Page 4-7 of the Categorical Exclusion), 14 exceeded the 2016 Build alternative's FHWA maximum noise level for a Category B activity (residence). NCDOT updated its noise policy in 2004 and the noise abatement guidelines would need to be re-evaluated.

It is also apparent from the review of the 1993 Categorical Exclusion that there has been increased development in the project study area and that relocation estimates need to be further examined. The air quality analysis also needs to be updated per requirements of the Clean Air Act amendments (Mecklenburg County is in a non-attainment area for Carbon monoxide and Ozone).

Based upon the project scope and characterization of the project study area, EPA believes that the proposed 3.6-mile long widening project should be processed as an Environmental Assessment consistent with FHWA's NEPA criteria at 23 CFR Part 771. A 'mitigated FONSI' might be required for impacts to jurisdictional wetlands and streams. EPA has also stated its preference that this widening project should be implemented through Process II of the 404/NEPA Merger 01 process. However, if jurisdictional impacts can be reduced during early alternatives analysis, EPA would fully support streamlining actions through Process II (e.g., Combined concurrence meetings) or removing the project from most of the Merger concurrence points if the potential jurisdictional impacts are minimal. EPA recognizes that FHWA and NCDOT prepare most Categorical Exclusions to an "EA-type" document. EPA believes that it would be beneficial and potentially more efficient to receive formal public and resource agency input on the proposed project before the submission of permit applications to the U.S. Army Corps of Engineers (ACE) and the North Carolina Division of Water Quality (DWQ).

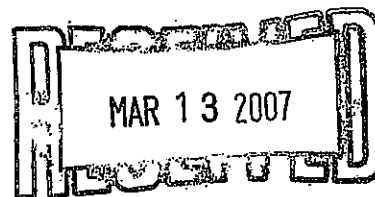
EPA appreciates the opportunity to comment on this project. Should you have any questions, please contact Mr. Christopher Militscher of my staff at 919-856-4206.

Sincerely,

A handwritten signature in black ink, appearing to read 'H. Mueller', with a horizontal line extending to the right.

Heinz J. Mueller, Chief  
NEPA Program Office  
Office of Policy and Management

Cc: S. McClendon, USACE  
J. Hennessy, NCDWQ  
C. Coleman, FHWA-NC



North Carolina Department of Cultural Resources  
State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor  
Lisbeth C. Evans, Secretary  
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History  
Division of Historical Resources  
David Brook, Director

February 21, 2007

Brian D. Dehler, P.E.  
STV / Whitehead Associates  
1000 West Morehead Street, Suite 200  
Charlotte, NC 28208

Re: NC 73 Improvements from West of US 21 to East of SR 2693 (Davidson-Concord Road),  
Mecklenburg County, ER 07-0265

Dear Mr. Dehler:

Thank you for the information that you provided in a memorandum to us dated September 29, 2006, concerning the above project. Based on the topographic and hydrological situation that exists within the proposed project area, we have determined that there is a very high probability that archaeological sites exist in the project area. We therefore recommend that if any earth moving activities are scheduled to take place, that a comprehensive archaeological survey be conducted by an experienced archaeologist to identify and evaluate the significance of any archaeological remains that may be damaged or destroyed by the proposed project. Please note that we now request consultation with the Office of State Archaeology to discuss appropriate field methodology prior to the archaeological field investigation.

If an archaeological field investigation is conducted, two copies of the resulting archaeological survey report, as well as one copy of the appropriate site forms, should be forwarded to us for review and comment as soon as they are available and well in advance of any earth moving activities.

A list of archaeological consultants who have conducted or expressed interest in contract work in North Carolina is available at [www.arch.dcr.state.nc.us/consults](http://www.arch.dcr.state.nc.us/consults). The archaeologists listed, or any other experienced archaeologists may be contacted to conduct the recommended survey.

We have conducted a search of our maps and files and located the following structure of historical or architectural importance within the general area of this project:

- (MK 1461)Caldwell Station School, eastside NC 115, one mile north of NC 73, Caldwell vicinity, Determined Eligible for the National Register of Historic Places, 2006.

We recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area, and report the findings to us.

ADMINISTRATION  
RESTORATION  
SURVEY & PLANNING

Location  
507 N. Blount Street, Raleigh NC  
515 N. Blount Street, Raleigh NC  
515 N. Blount Street, Raleigh, NC


Mailing Address  
4617 Mail Service Center, Raleigh NC 27699-4617  
4617 Mail Service Center, Raleigh NC 27699-4617  
4617 Mail Service Center, Raleigh NC 27699-4617

Telephone/Fax  
(919)733-4763/733-8653  
(919)733-6547/715-4801  
(919)733-6545/715-4801

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and considerations. If you have any questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-733-4763, ext 246. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

A handwritten signature in cursive script that reads "Renee Gledhill-Earley".A small handwritten mark, possibly a signature or initials, located to the left of the name Peter Sandbeck.

Peter Sandbeck

cc: Matt Wilkerson, NCDOT  
Mary Pope Furr, NCDOT



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

April 5, 2007

Mr. Peter Sandbeck, Administrator  
State Historic Preservation Office  
4617 Mail Service Center  
Raleigh, NC 27699-4617


Mr. Sandbeck,

Re: R-2632A, Widening of NC 73 (Sam Furr Road) from West of US 21 to East of SR 2693  
(Davidson-Concord Road), Mecklenburg County, Division 10, State Project No. 8.2672101,  
Federal Aid No. STP-73(16), ER 07-0265

Thank you for your correspondence of February 21, 2007. In response to your recommendation that a comprehensive archaeological survey be conducted if any earth moving activities were to be scheduled for this project, a reconnaissance survey of the project corridor was conducted by Paul J. Mohler and Brian Overton, NCDOT Archaeologists, on Wednesday, March 28, 2007. In addition, consultation with the Office of State Archaeology (OSA), as requested, took place on Wednesday, April 04, 2007, to discuss appropriate field methodologies. The R-2632A project corridor has been divided into two segments: 1) "AA," west of US 21 to east of Parr Drive, and 2) "AB," east of Parr Drive to east of Davidson-Concord Road.

Based on the reconnaissance survey, background research, and consultation with OSA, it has been determined that the "AA" segment of the R-2632A project corridor has been greatly disturbed by the processes of urbanization and residential development and does not warrant any additional archaeological investigations. However, further archaeological investigations may be required for small portions of the "AB" segment that are located immediately adjacent to drainages and have a topographical slope of less than 15%. In contrast to most of Mecklenburg County, these particular locations may not show signs of sheet erosion, therefore, retaining their stratigraphic integrity. Recent soil survey maps show the remaining portions of the "AB" segment as considerably eroded, presenting an extremely low potential for containing intact archaeological materials. Therefore, the Area of Potential Effects (APE) for the "AB" segment can be defined as locations immediately adjacent to drainages, that have a topographical slope of less than 15%, and are slated for ROW purchase. In compliance with Section 106 of the National Historic Preservation Act (1966, as amended), the NCDOT, or one of our consultants, will conduct archaeological investigations only within the APE as defined above for the "AB" segment. These investigations shall be included as a project commitment for finalizing the environmental document. We look forward to receiving your concurrence in regards to our proposed testing methodology for this project. Thank you for your assistance in this matter. Should you have any questions, please feel free to contact me at (919) 715-1561, or Mr. Paul J. Mohler, NCDOT Archaeologist, at (919) 715-1555.

Regards,

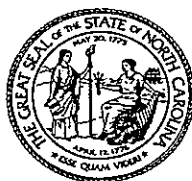
  
Matt Wilkerson  
Archaeology Supervisor  
Human Environment Unit

MAILING ADDRESS:  
NC DEPARTMENT OF TRANSPORTATION  
HUMAN ENVIRONMENT UNIT  
1583 MAIL SERVICE CENTER  
RALEIGH NC 27699-1583

TELEPHONE: 919-715-1500  
FAX: 919-715-1522  
WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

LOCATION:  
PARKER LINCOLN BUILDING  
2728 CAPITAL BOULEVARD, SUITE 168  
RALEIGH, NC 27604





RECEIVED  
Division of Highways

MAY 11 2007

Reconstruction

Project Development and  
Environmental Analysis Branch

## North Carolina Department of Cultural Resources

### State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor  
Lisbeth C. Evans, Secretary  
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History  
Division of Historical Resources  
David Brook, Director

May 9, 2007

#### MEMORANDUM

TO: Gregory Thorpe, Ph.D., Director  
Project Development and Environmental Analysis Branch  
NCDOT Division of Highways

FROM: Peter Sandbeck *PSE for Peter Sandbeck*

SUBJECT: Historic Architectural Resources Survey Report, Widen NC Highway 73, R-2632A,  
Mecklenburg County, ER 07-0265

Thank you for your letter of April 27, 2007, transmitting the survey report by Sarah David Woodard, for the above project.

For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that the following property is not eligible for the National Register of Historic Places:

William and Kate Mayes House, NC 73 at the intersection of Sam Furr Road, constructed in the 1970s, and Davidson-Concord Road. The property has been compromised by a loss of integrity in materials and design. It has a replacement porch, interior alterations, and rear additions. The historical association between the house and the outbuildings has been lost and the agricultural fields are no longer cultivated. These conditions have a negative effect upon the property's integrity of setting and agricultural association and hinder the property's ability to convey significance.

We concur that the Caldwell Station School is located outside the project's Area of Potential Effects.

We also concur that the Marcus and Nancy Caldwell House is located outside the Area of Potential Effects for this project. This is illustrated in Figure 2 of page 2, and labeled APE Map with Surveyed Resources. We understand that the area outlined in pink is no longer part of this project.

We also agree that the Marcus and Nancy Caldwell House is very likely eligible for the National Register of Historic Places.

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount Street, Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-4763/733-8653
RESTORATION	515 N. Blount Street, Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-6547/715-4801
SURVEY & PLANNING	515 N. Blount Street, Raleigh, NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-6545/715-4801

We note that the report's Management Summary does not sufficiently describe the eastern termini for the project. However, because you have indicated the project is fast-tracked, we are not requesting additional information regarding the eastern termini.

Instead, we will use the survey map to document that the Marcus and Nancy Caldwell House is outside the project APE. Should the project limits change from the April 2007 survey map in the report, we will need to re-evaluate the project.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763 ext. 246. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr  
Sarah David Woodard



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

October 15, 2007

Mr. Peter Sandbeck, Administrator  
State Historic Preservation Office  
4617 Mail Service Center  
Raleigh, North Carolina 27699-4617

Dear Mr. Sandbeck,

Re: Archaeological Survey and Evaluation, Widening of NC 73 (Sam Furr Road) from I-77 to SR 2693 (Davidson-Concord Road), Mecklenburg County, North Carolina, TIP No. R-2632A, Federal Aid Project No. STP-73(16), WBS No. 38824.1.1, Division 10, ER 07-0265.

Enclosed please find two copies of the manuscript prepared by our archaeology consultants reporting the results of the investigation in regards to the above-referenced project. Site identification and evaluation were done in compliance with Section 106 of the National Historic Preservation Act (1966, as amended) and the guidelines issued by the Advisory Council on Historic Preservation.

As a result of this survey, one (1) previously unrecorded archaeological isolated find (31MK1082) was discovered. One (1) archaeological site (31MK594/594\*\*) was revisited. Isolated find 31MK1082 is not recommended as eligible for the National Register of Historic Places (NRHP). Although Site 31MK594/594\*\* was recommended as eligible for the NRHP by a previous survey (Abbott 1991), the current investigation determined that its boundaries do not extend into the project's Area of Potential Effects (APE). Further work at Site 31MK594/594\*\*, therefore, was not conducted. As currently designed, the proposed project will have no effect on archaeological properties. Should design limits change prior to construction, additional investigations may be warranted.

We look forward to receiving your comments. Thank you for your assistance in this matter. Should you have any questions concerning this project, please contact me at (919) 715-1561 or Mr. Paul J. Mohler, NCDOT Archaeologist, at (919) 715-1555.

Regards,

Matt Wilkerson  
Archaeology Supervisor  
Human Environment Unit

MTW/pjm

Enclosures (2 copies of report w/site forms)

cc: Ron Lucas, FHWA (1 copy of report)  
Theresa Ellerby, PDEA (1 copy of report)  
Khaled Al-Akhdar, Alternative Delivery Unit (1 copy of report)  
Paul J. Mohler, Archaeology

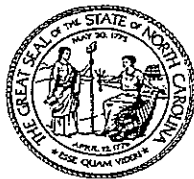
MAILING ADDRESS:  
NC DEPARTMENT OF TRANSPORTATION  
HUMAN ENVIRONMENT UNIT  
1563 MAIL SERVICE CENTER  
RALEIGH NC 27699-1563

TELEPHONE: 919-715-1500  
FAX: 919-715-1522  
WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

LOCATION:  
PARKER LINCOLN BUILDING  
2728 CAPITAL BOULEVARD, SUITE 168  
RALEIGH, NC 27604

RECEIVED  
ALTERNATIVE DELIVERY UNIT

OCT 18 2007



North Carolina Department of Cultural Resources  
State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor  
Lisbeth C. Evans, Secretary  
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History  
Division of Historical Resources  
David Brook, Director

November 28, 2007

MEMORANDUM

To: Matt Wilkerson  
Office of Human Environment  
NCDOT Division of Highways

FROM: Peter Sandbeck *PSB for Peter Sandbeck*

SUBJECT: Archaeological Survey and Evaluation, Widening of NC 73 (Sam Furr Road) from I-77 to SR 2693 (Davidson-Concord Road), R-2632A, Mecklenburg County, ER 07-0265

Thank you for your letter of October 15, 2007, transmitting the report for the above project.

The report author states that the following archaeological property, 31MK594&594\*\* is located outside of the existing ROW and will not be adversely affected by the proposed roadway construction. For purposes of compliance with Section 106 of the National Historic Preservation Act, we agree with this assessment. The report authors further states that site 31MK1082 is not eligible for listing in the National Register of Historic Places: ~~31MK1082~~. This property does not retain the level of integrity nor do they possess the potential to yield significant new information pertaining to either the prehistory or history of North Carolina. We concur with these recommendations

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and considerations. If you have any questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919.807.6579. In all future communication concerning this project, please cite the above referenced tracking number.

CC: L. Williams ✓ CH 5-22-09



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Asheville Field Office  
160 Zillicoa Street  
Asheville, North Carolina 28801

May 6, 2009

RECEIVED  
Division of Highways

MAY 12 2009

Project Development and  
Environmental Analysis Branch



Dr. Gregory J. Thorpe, Manager  
Project Development and Environmental Analysis Branch  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: Endangered Species Concurrence for TIP Project No. R-2632A, Proposed Widening of NC 73 from West of US 21 to East of SR 2427 in Mecklenburg County, North Carolina, Federal Aid Project No. STP-73(16), WBS No. 38824.1.1

We have reviewed your concurrence request and the survey reports for the subject project and potential impacts to the federally endangered Carolina heelsplitter (*Lasmigona decorata*). We provide the following comments in accordance with the provisions of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

The North Carolina Department of Transportation (NCDOT) proposes to widen NC 73 from west of US 21 to east of SR 2427. The widening will impact Ramah Creek, two unnamed tributaries to Ramah Creek, and an unnamed tributary to Caldwell Station Creek. The unnamed tributaries do not provide suitable habitat for freshwater mussels. Ramah Creek will be impacted by extending the existing culvert. According to the information provided, surveys for freshwater mussels resulted in the discovery of no mussels in the footprint of the project at Ramah Creek or for 400 meters downstream or 100 meters upstream. The closest known native freshwater mussels were located about 4.5 miles downstream of the project crossing. Given the negative survey data and the minimal impact of the project, we concur that the proposed culvert extension is "not likely to adversely affect" the Carolina heelsplitter in the project area. In view of this, we believe the requirements under section 7(c) of the Act are fulfilled. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

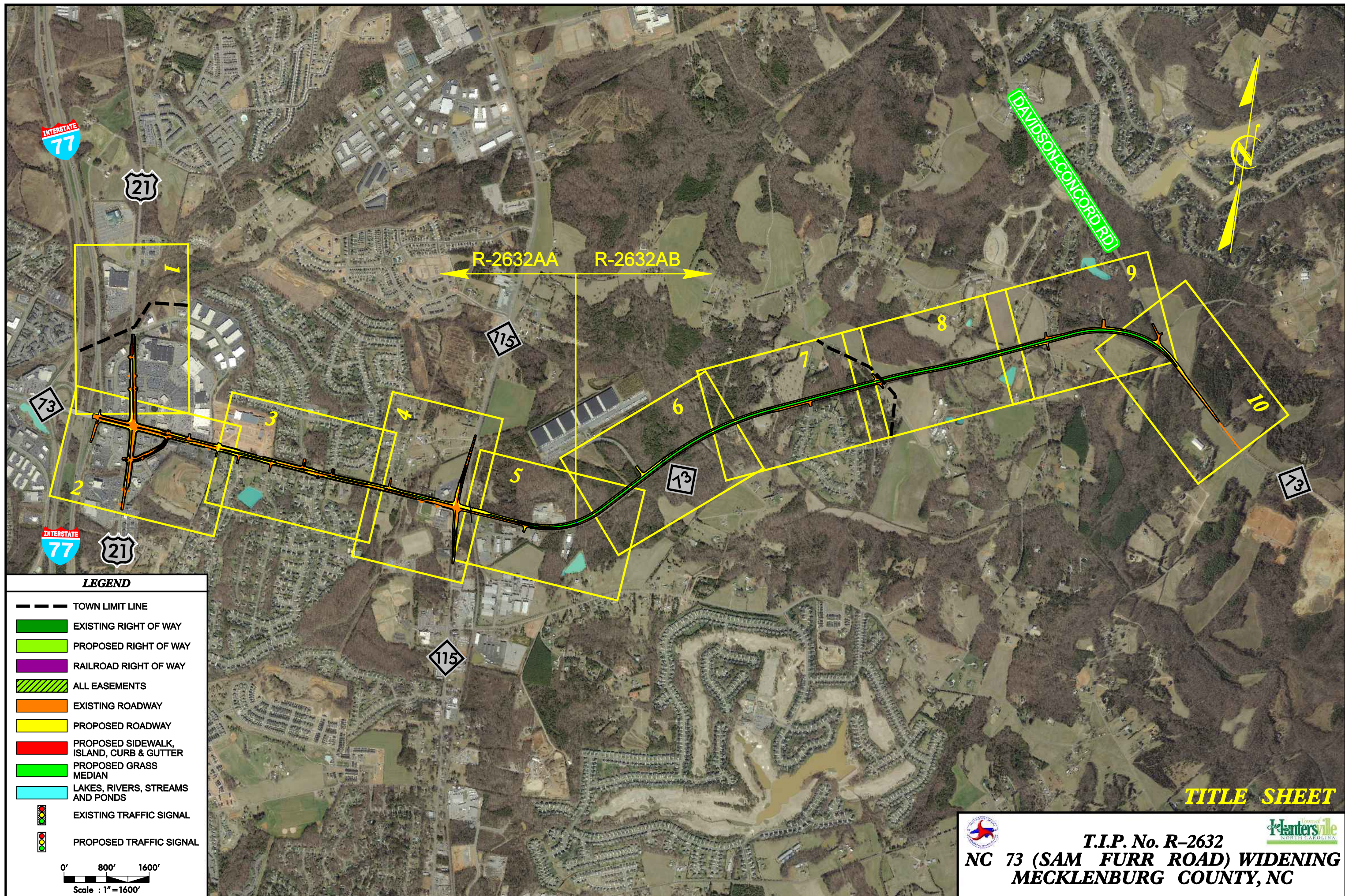
If you have questions about these comments, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning this project, please reference our Log No. 4-2-09-282.

Sincerely,

A handwritten signature in cursive script, appearing to read "Brian P. Cole".

Brian P. Cole  
Field Supervisor

**Appendix B**  
**Preferred Alternative**  
**(February 2009)**



**LEGEND**

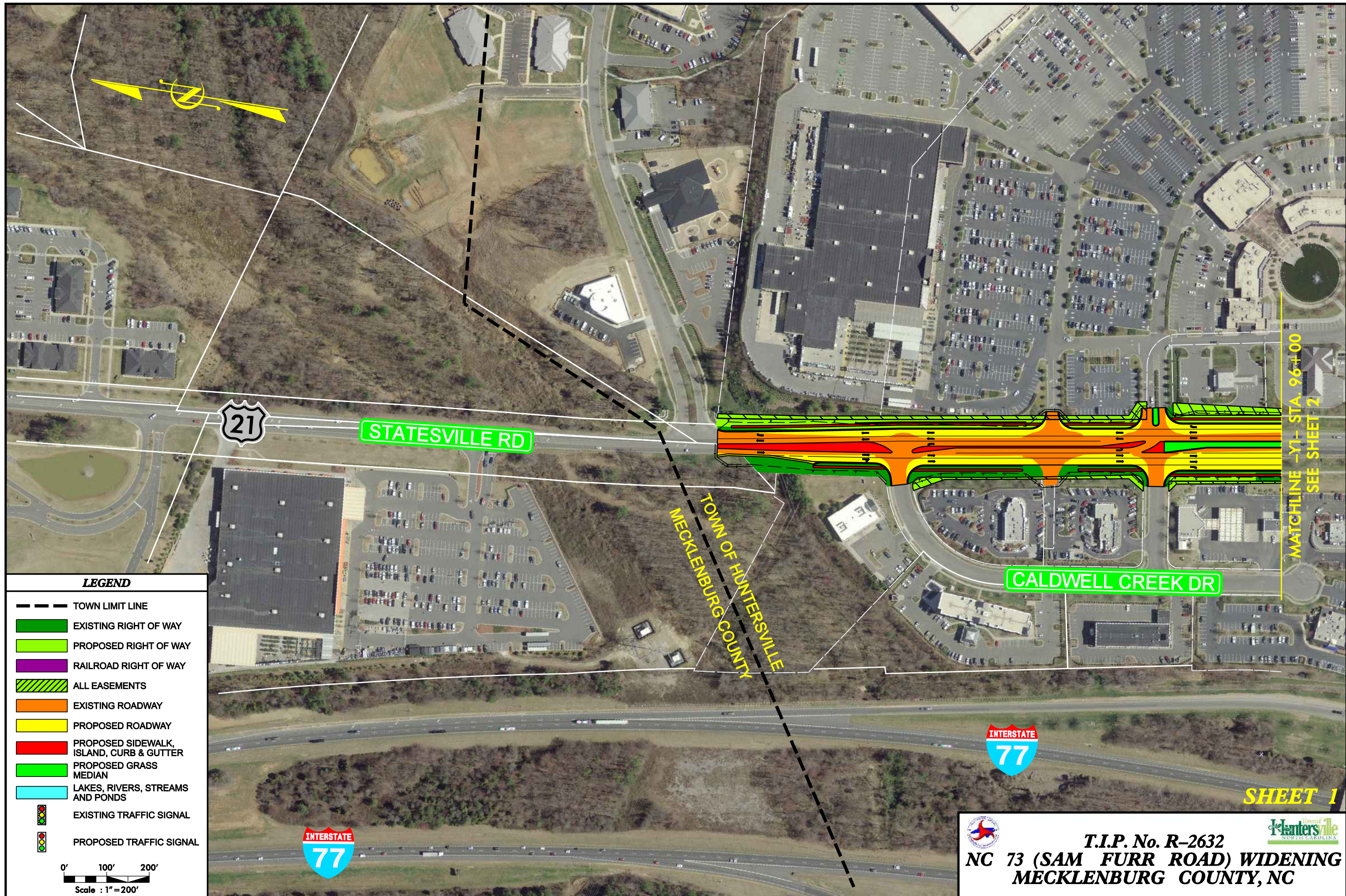
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- PROPOSED RIGHT OF WAY
- RAILROAD RIGHT OF WAY
- ALL EASEMENTS
- EXISTING ROADWAY
- PROPOSED ROADWAY
- PROPOSED SIDEWALK, ISLAND, CURB & GUTTER
- PROPOSED GRASS MEDIAN
- LAKE, RIVERS, STREAMS AND PONDS
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL

0' 800' 1600'  
Scale : 1"=1600'

**TITLE SHEET**



**T.I.P. No. R-2632**  
**NC 73 (SAM FURR ROAD) WIDENING**  
**MECKLENBURG COUNTY, NC**



**LEGEND**

- TOWN LIMIT LINE
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- RAILROAD RIGHT OF WAY
- ALL EASEMENTS
- EXISTING ROADWAY
- PROPOSED ROADWAY
- PROPOSED SIDEWALK, ISLAND, CURB & GUTTER
- PROPOSED GRASS MEDIAN
- LAKES, RIVERS, STREAMS AND PONDS
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL

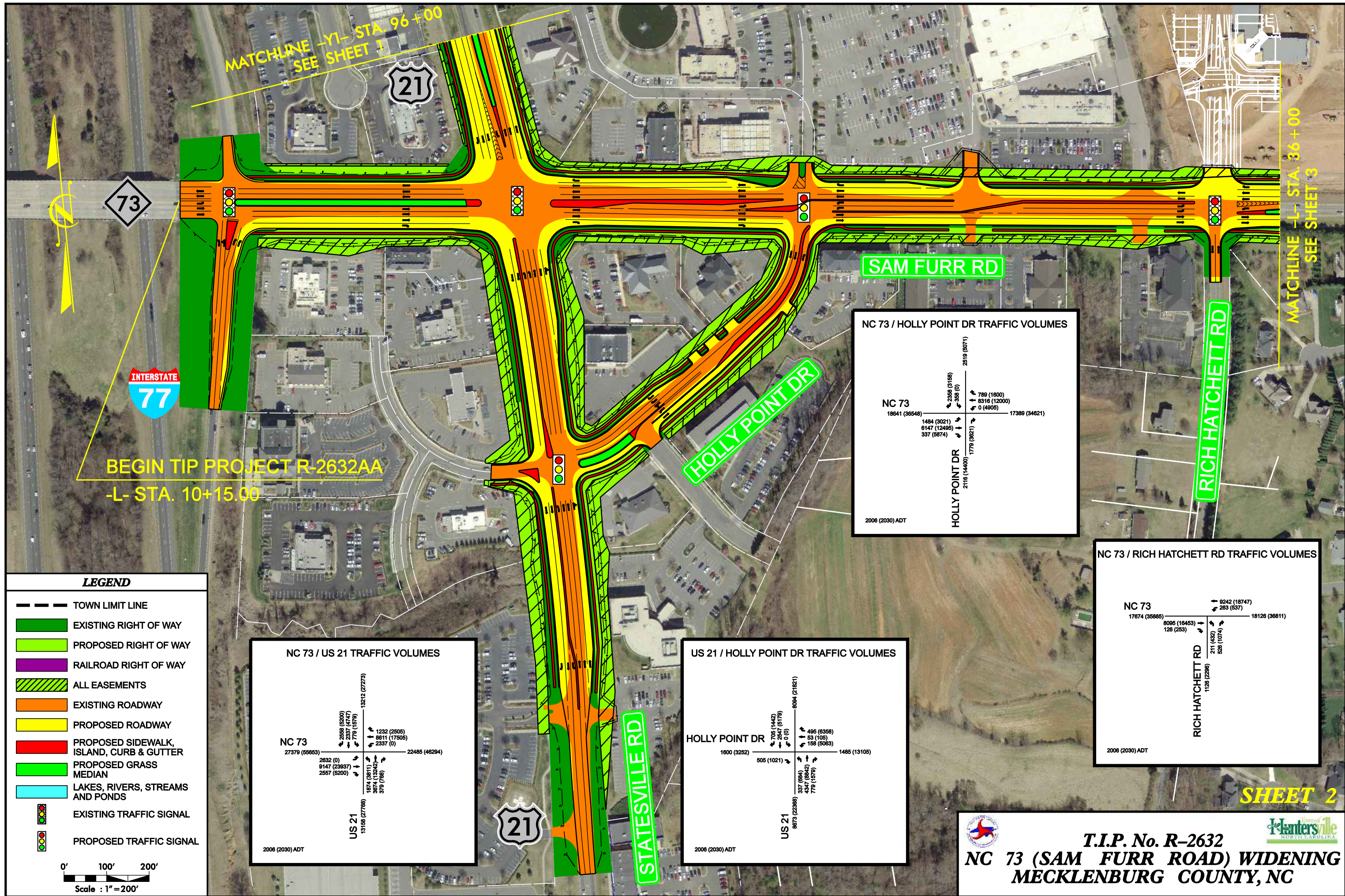
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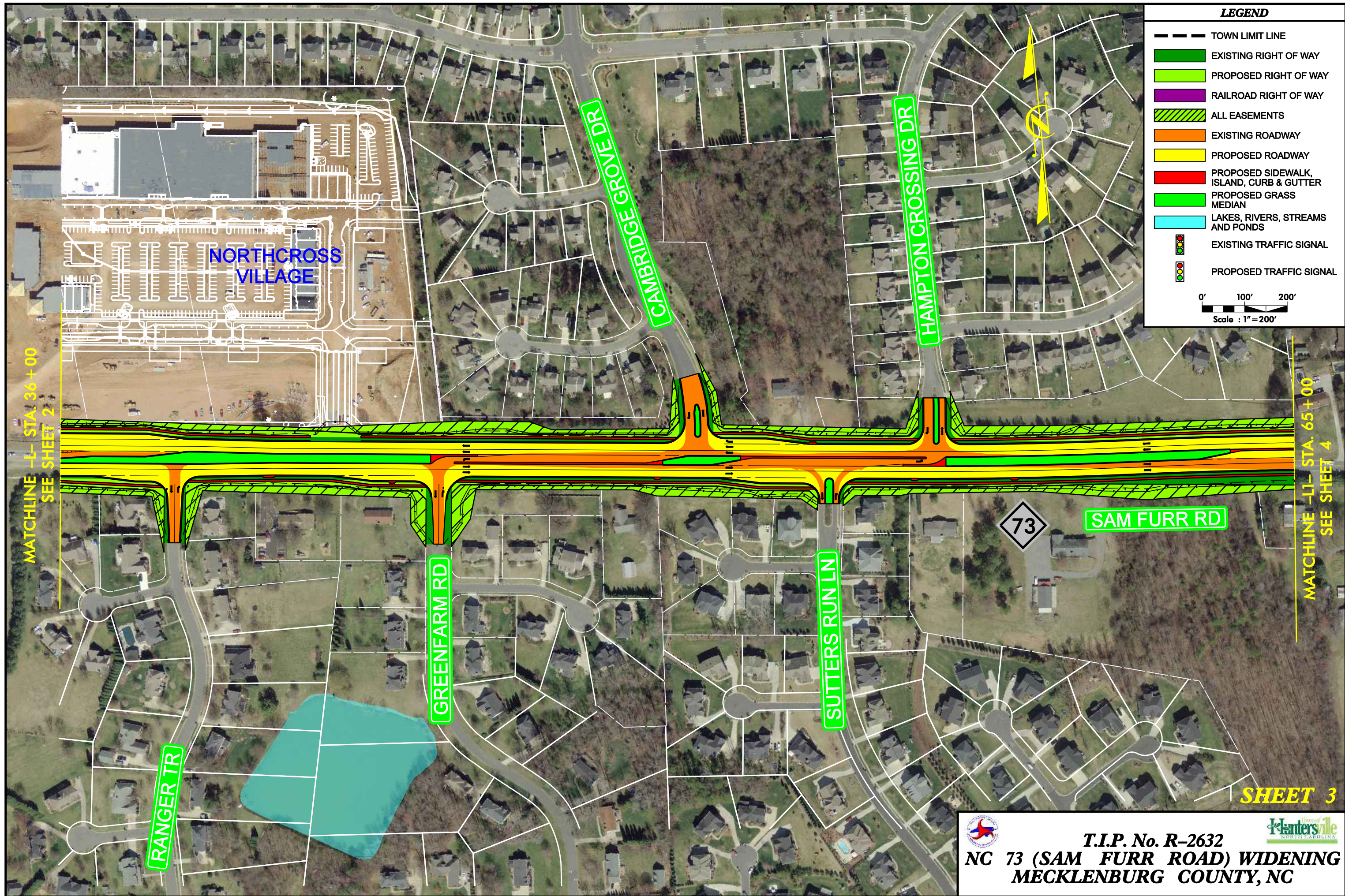
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SEE SHEET 2

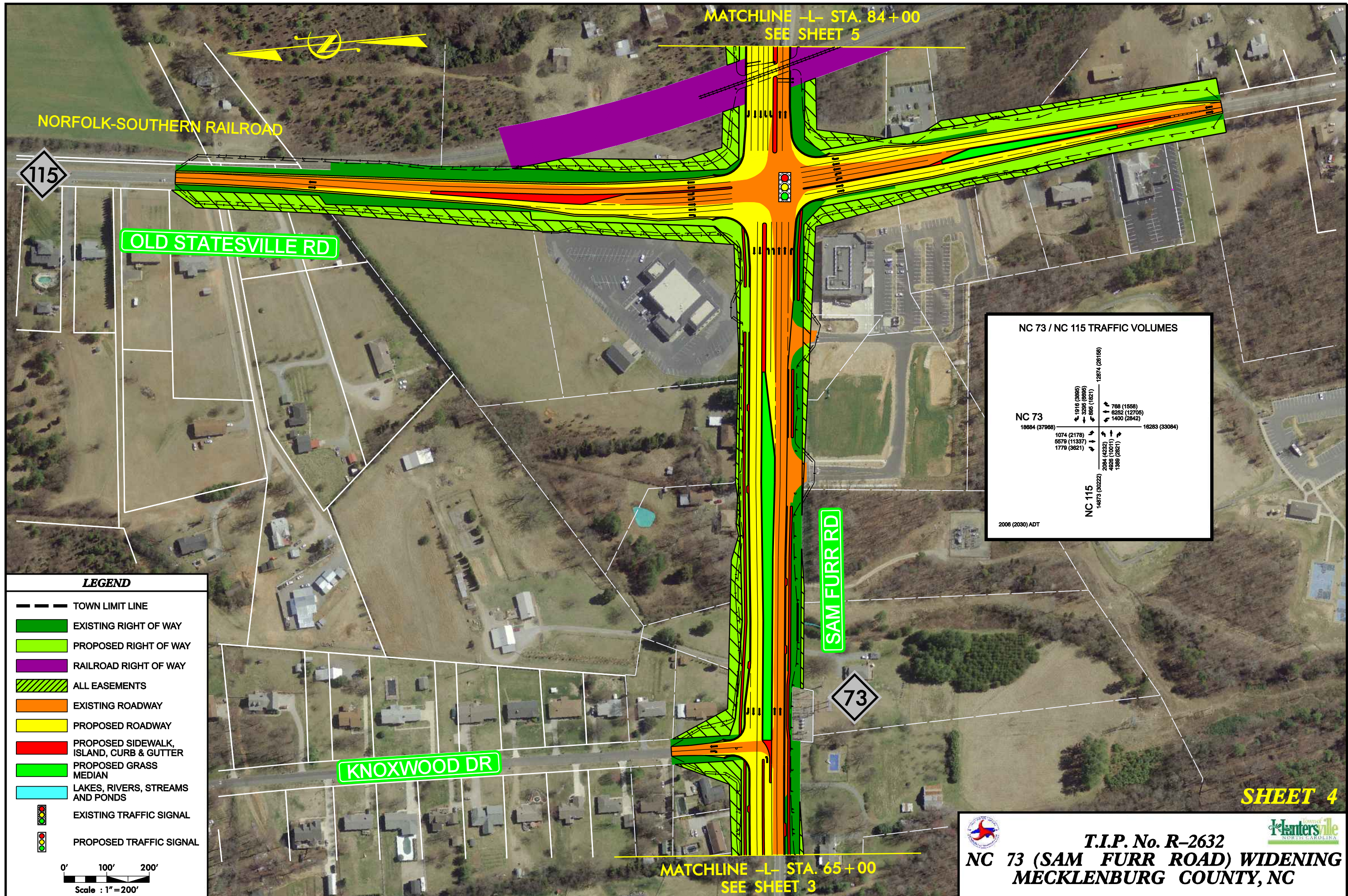
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**T.I.P. No. R-2632**  
**NC 73 (SAM FURR ROAD) WIDENING**  
**MECKLENBURG COUNTY, NC**







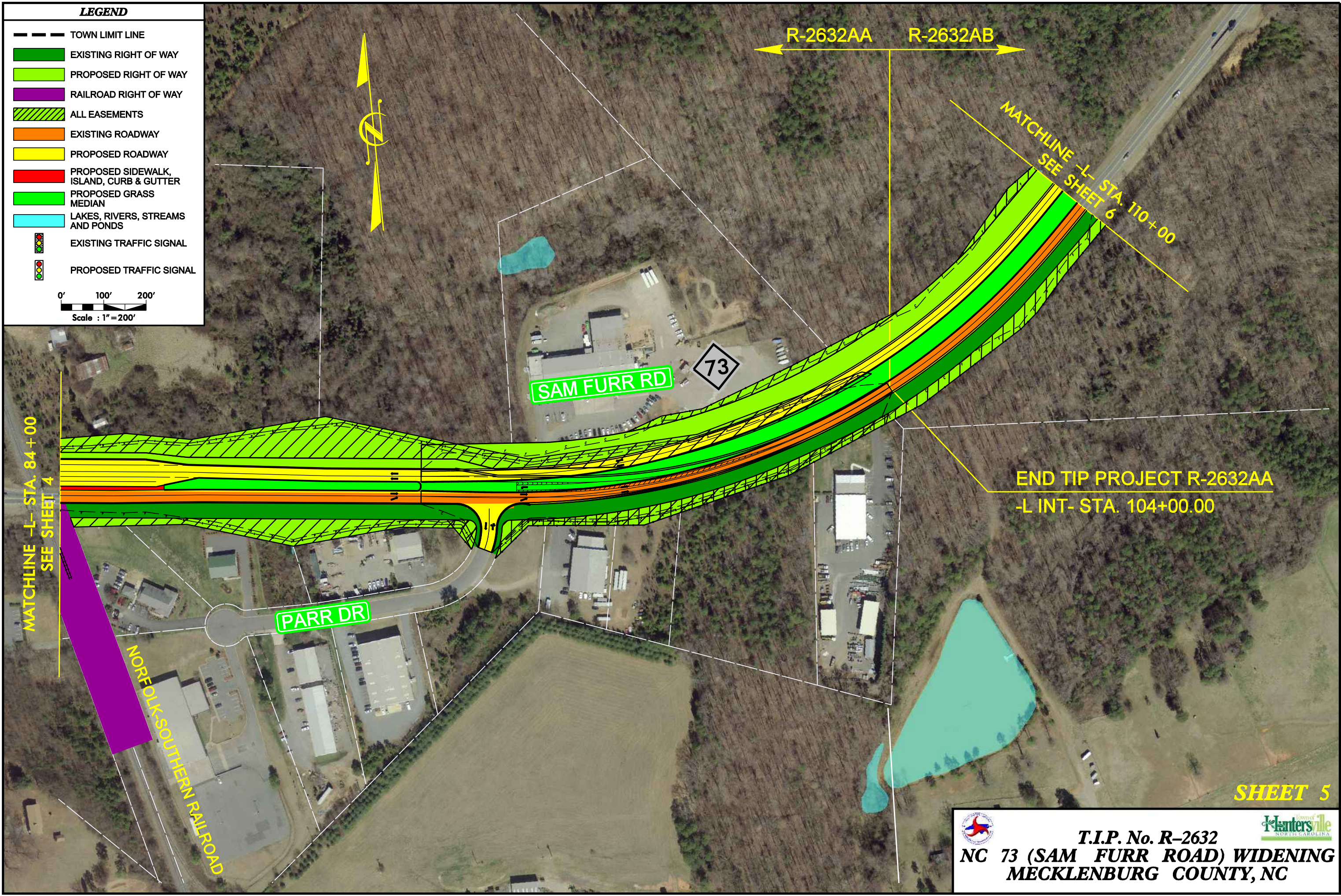


**LEGEND**

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- ALL EASEMENTS
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- PROPOSED SIDEWALK, ISLAND, CURB & GUTTER
- PROPOSED GRASS MEDIAN
- LAKES, RIVERS, STREAMS AND PONDS
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL

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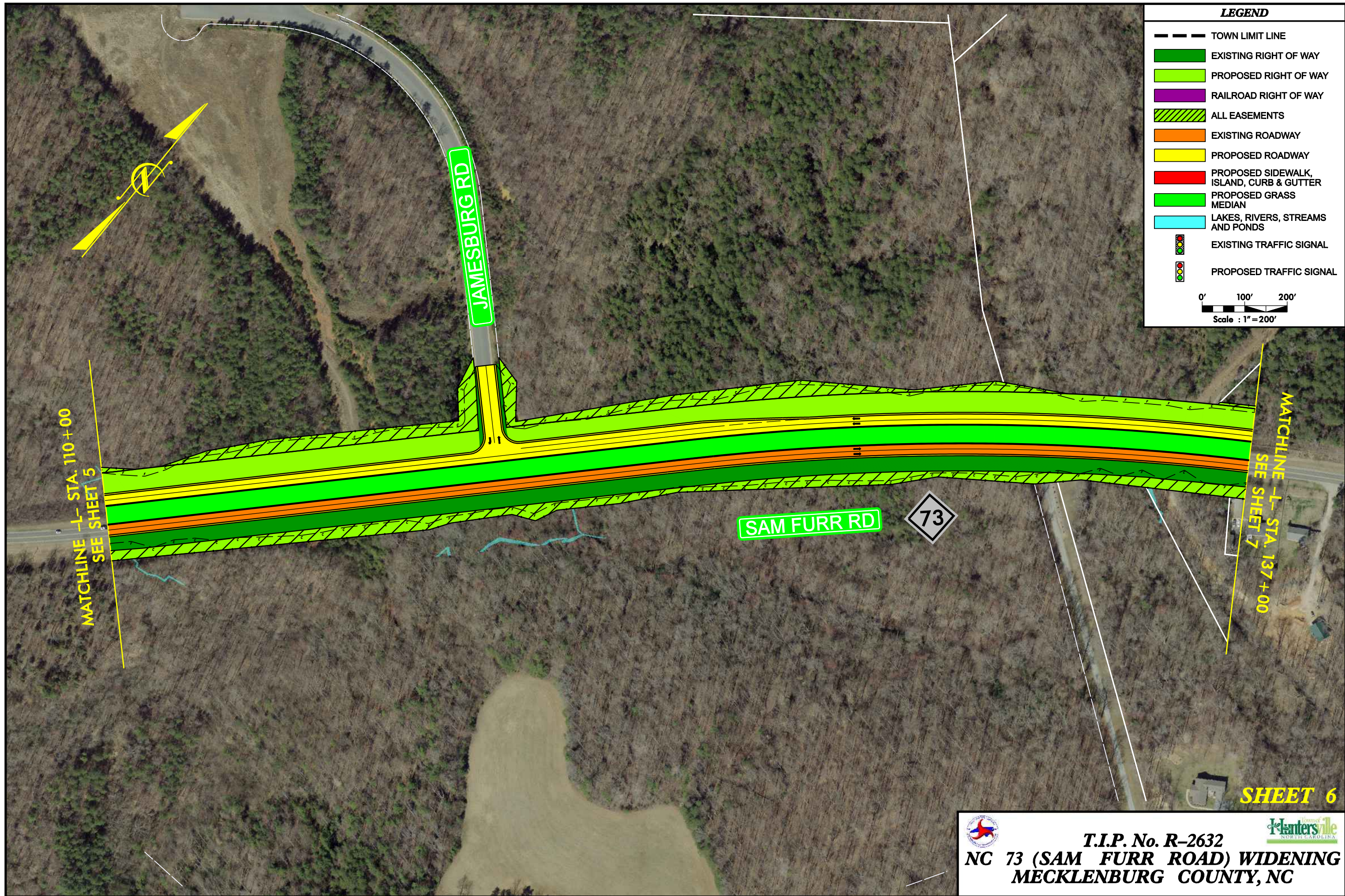
**SHEET 5**



**T.I.P. No. R-2632**  
**NC 73 (SAM FURR ROAD) WIDENING**  
**MECKLENBURG COUNTY, NC**



**Huntersville**  
 NORTH CAROLINA



**LEGEND**

- TOWN LIMIT LINE
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- RAILROAD RIGHT OF WAY
- ALL EASEMENTS
- EXISTING ROADWAY
- PROPOSED ROADWAY
- PROPOSED SIDEWALK, ISLAND, CURB & GUTTER
- PROPOSED GRASS MEDIAN
- LAKES, RIVERS, STREAMS AND PONDS
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL

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Scale : 1" = 200'

MATCHLINE -L- STA. 110+00  
SEE SHEET 5

MATCHLINE -L- STA. 137+00  
SEE SHEET 7

**SHEET 6**



**T.I.P. No. R-2632**  
**NC 73 (SAM FURR ROAD) WIDENING**  
**MECKLENBURG COUNTY, NC**

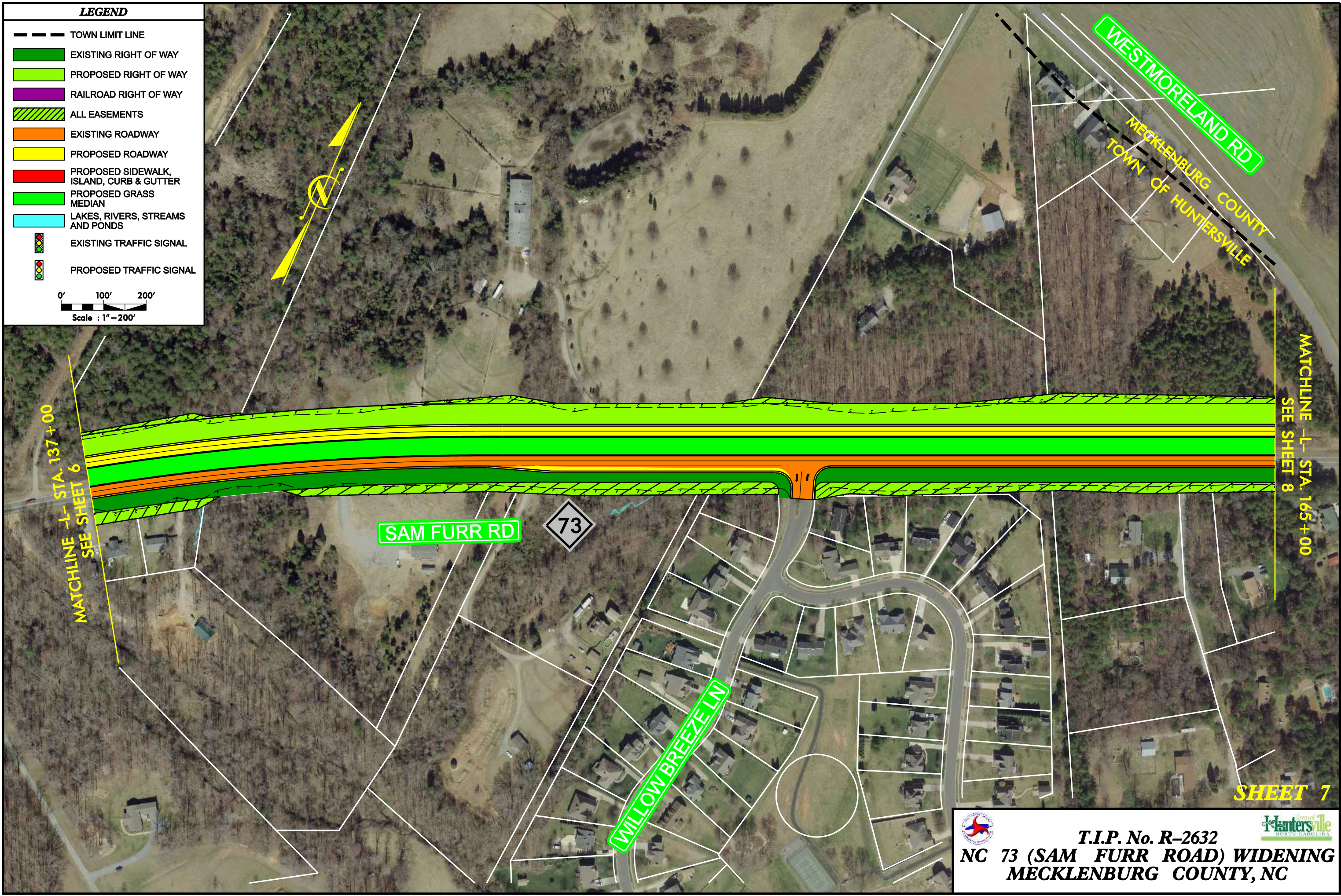
**Huntersville**  
NORTH CAROLINA

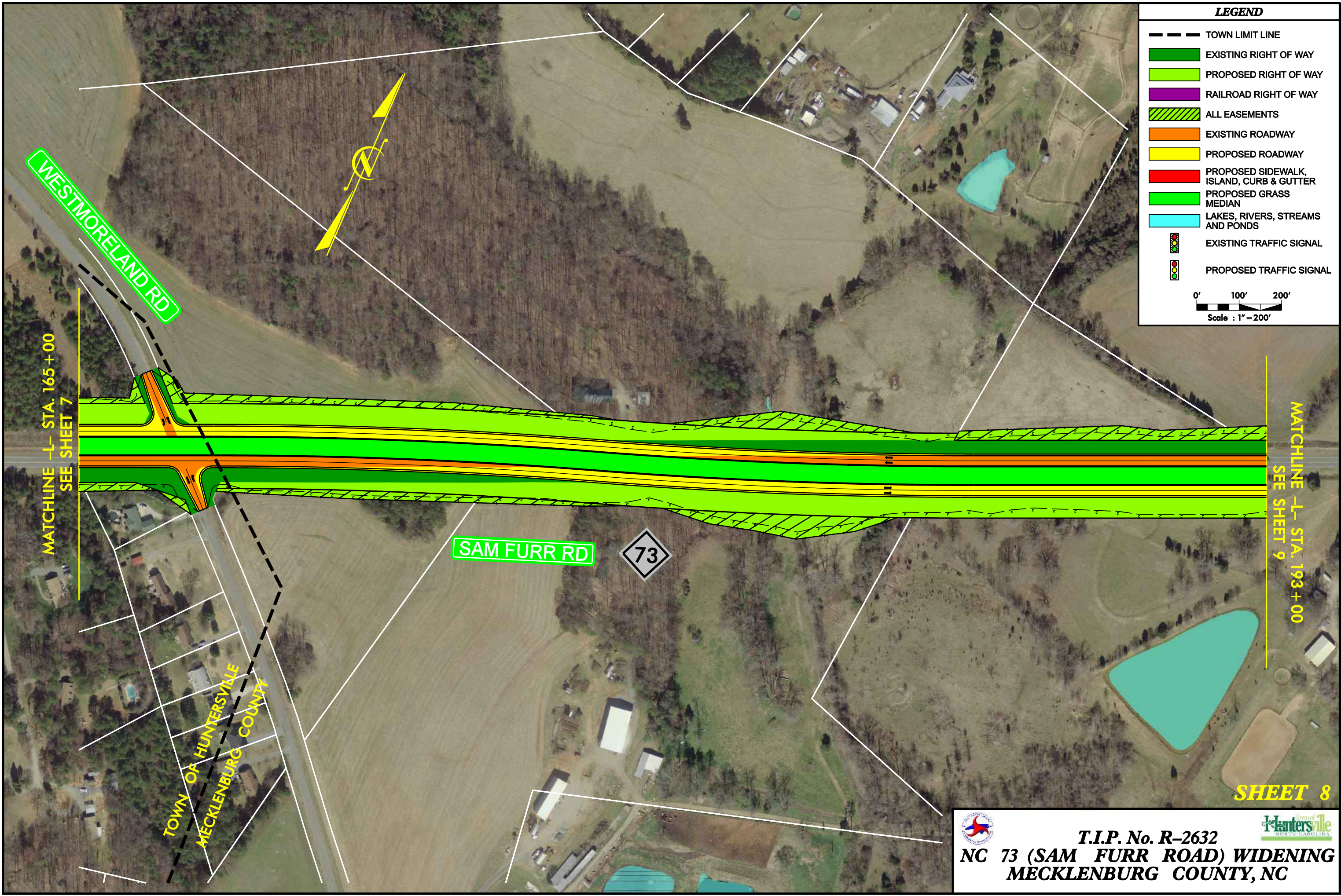
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- ALL EASEMENTS
- EXISTING ROADWAY
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- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL

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**LEGEND**

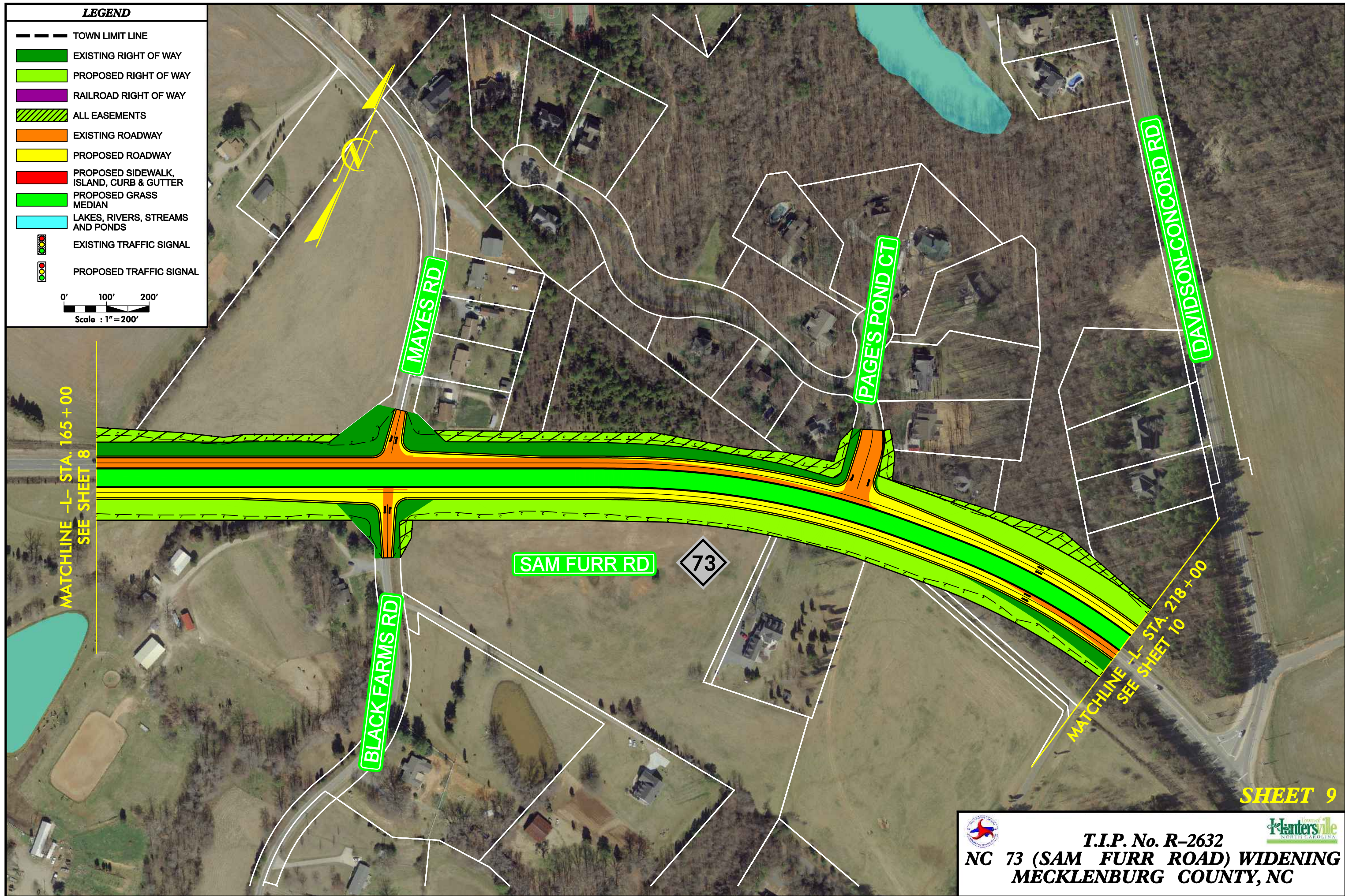
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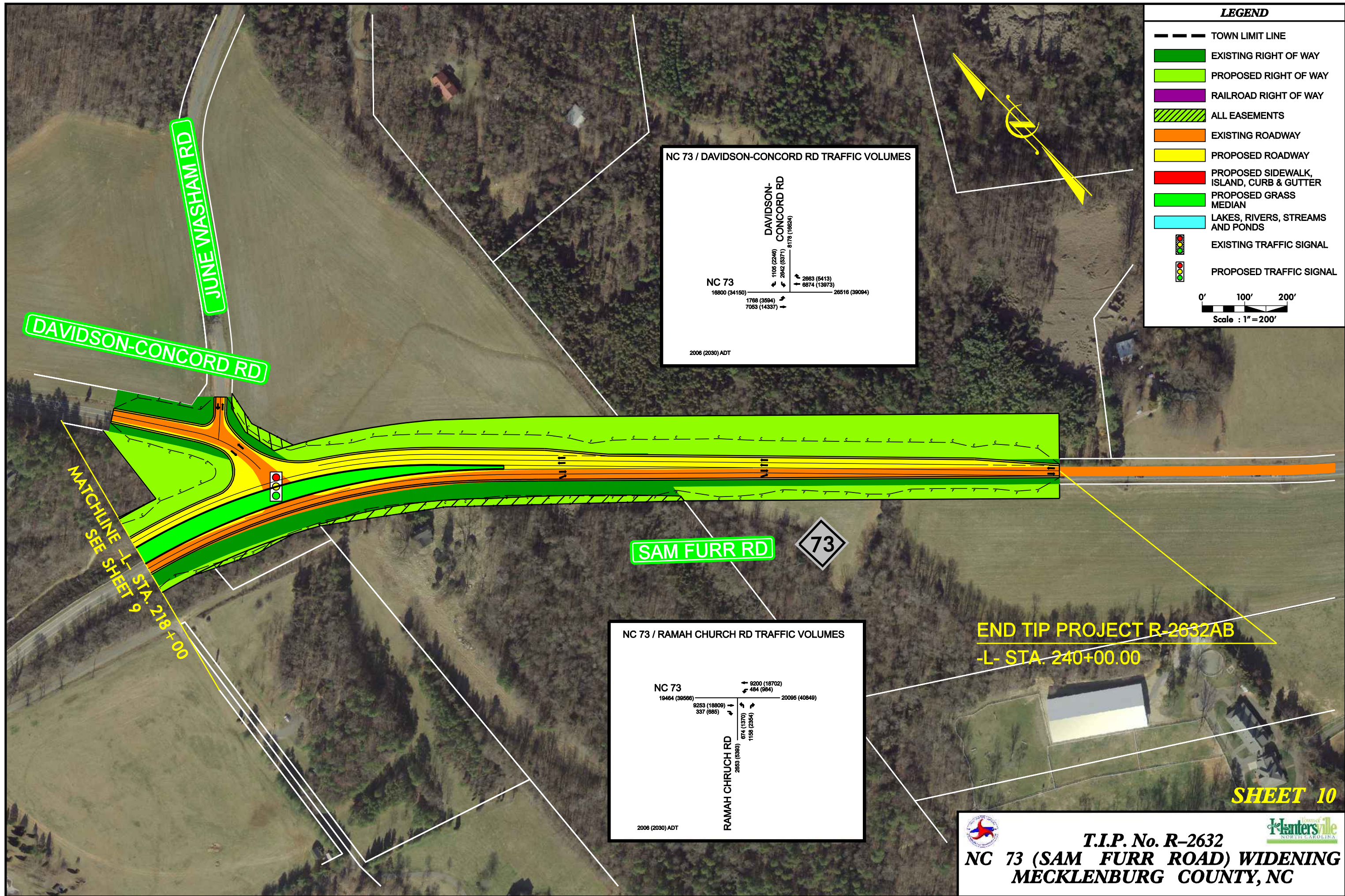
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**SHEET 8**

 **T.I.P. No. R-2632**  
**NC 73 (SAM FURR ROAD) WIDENING**  
**MECKLENBURG COUNTY, NC**



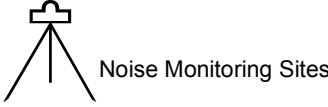
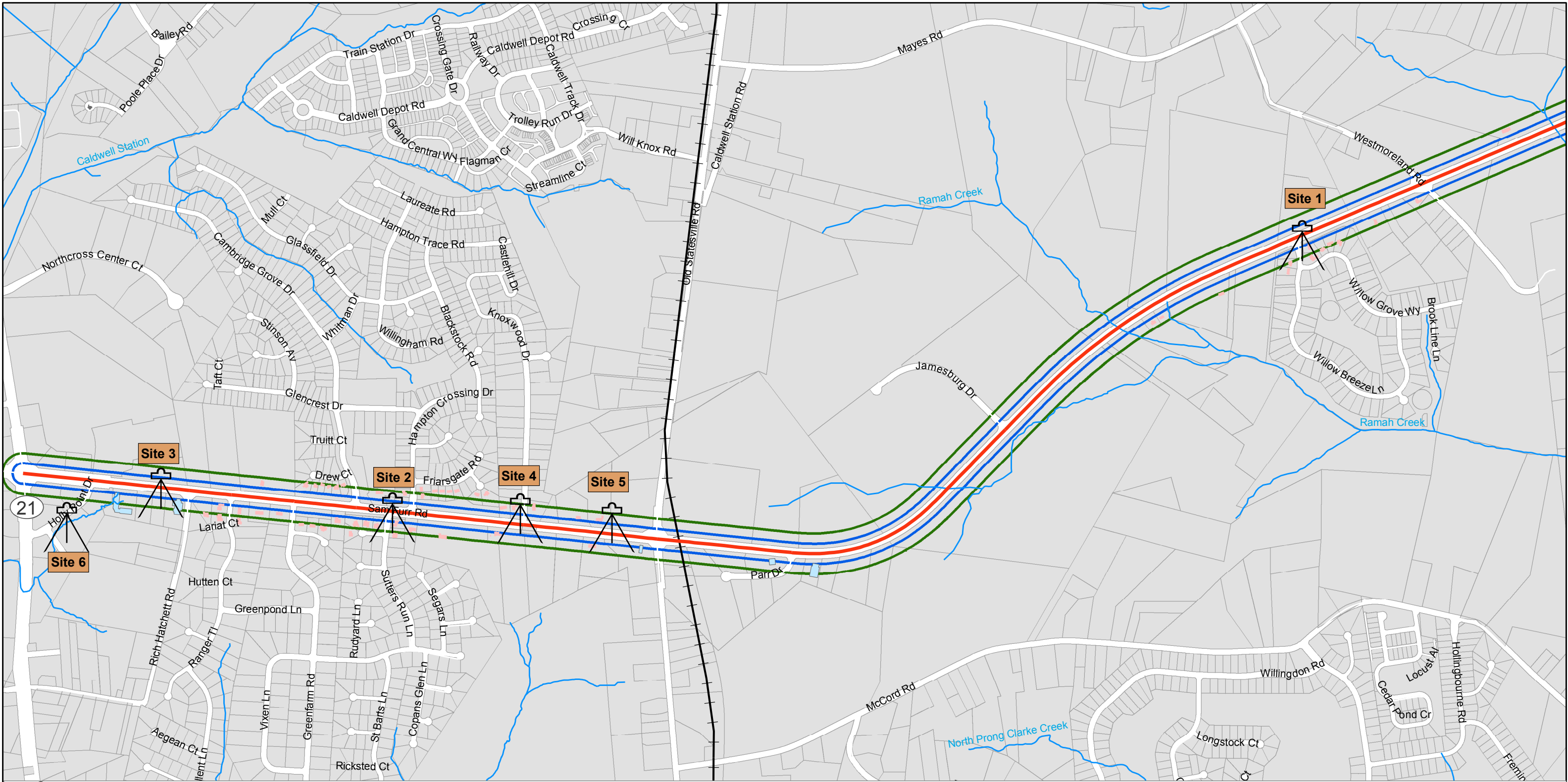




**Appendix C**  
**Noise Measurements and**  
**Traffic Noise Impact**  
**Summary**

Table 5. Identified Receptors and Exterior Traffic Noise Summary

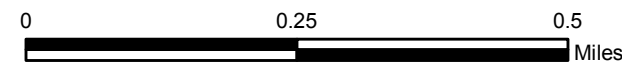
Receptor Information		Address	Nearest Existing Roadway	Ambient Noise Level	Nearest Proposed Roadway		Predicted Noise Levels		
PID	Land Use				Name	Distance to CL (feet)	Max	Noise Level Increase	Land Use Category
01102130	Business	11136 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	55	69.3	4.2	Commercial
01102139	Business	100 PARR DR, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50	74	4.7	Commercial
00927C99	Commercial	9710 A SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50	74	4.7	Commercial
00927213	Commercial	9816 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50	74	4.7	Commercial
01104130	Residence	13101 WILLOW/BREEZE LN, HUNTERSVILLE 28078-9619	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	80.623	69.3	4.2	Residential
01104132	Residence	12421 WILLOW GROVE WY, HUNTERSVILLE 28078-9618	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	79.057	69.3	4.2	Residential
01104133	Residence	12425 WILLOW GROVE WY, HUNTERSVILLE 28078-9618	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	76.158	69.3	4.2	Residential
01104134	Residence	12431 WILLOW GROVE WY, HUNTERSVILLE 28078-9618	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	76.158	69.3	4.2	Residential
01104114	Residence	13100 WESTMORELAND RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	47.434	74	4.7	Residential
01104118	Residence	12500 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	47.434	74	4.7	Residential
01107311	Residence	SAM FURR RD, UNINC 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	43.012	74	4.7	Residential
01104442	Residence	13112 WILLOW/BREEZE LN, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	59.4	NC 73/ Sam Furr Rd	120.830	63.1	3.7	Residential
01104453	Residence	12006 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	47.170	74	4.7	Residential
01104454	Residence	12018 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	47.170	74	4.7	Residential
01106226	Residence	12731 SAM FURR RD, UNINC 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	47.434	74	4.7	Residential
01107104	Residence	13815 MAYES RD, UNINC 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	47.434	74	4.7	Residential
00912718	Residence	10024 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00912719	Residence	10012 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00911114	Residence	10532 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00911115	Residence	10400 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00911116	Residence	10332 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00911121	Residence	10600 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00911336	Residence	16634 SUTTERS RUN LN, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	65.765	69.3	4.2	Residential
00911337	Residence	10305 BERNICK WAY LN, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	70.000	69.3	4.2	Residential
00911338	Residence	10309 BERNICK WAY LN, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	68.007	69.3	4.2	Residential
00912268	Residence	10315 BERNICK WAY LN, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	65.192	69.3	4.2	Residential
00912269	Residence	9905 LARIAT CT, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	50.000	69.3	4.2	Residential
00912270	Residence	16617 RANGER TL, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	59.4	NC 73/ Sam Furr Rd	181.728	69.3	9.9	Residential
00912401	Residence	16627 RANGER TL, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00912701	Residence	10100 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00731101	Residence	13316 WHITE BIRCH TR, UNINC 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00731117	Residence	17900 PAGE'S POND CT, UNINC 28078	NC 73/ Sam Furr Rd.	59.4	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00543274	Residence	16712 HAMPTON CROSSING DR, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	59.4	NC 73/ Sam Furr Rd	144.309	63.1	3.7	Residential
00543276	Residence	10533 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00543277	Residence	10541 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00543301	Residence	16713 HAMPTON CROSSING DR, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	59.4	NC 73/ Sam Furr Rd	150.083	63.1	3.7	Residential
00543122	Residence	10633 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00543123	Residence	10711 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00543119	Residence	16808 KNOXWOOD DR, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	50.000	74	4.7	Residential
00531101	Residence	10205 SAM FURR RD, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	69.3	NC 73/ Sam Furr Rd	45.000	74	4.7	Residential
00531301	Residence	10122 DREW CT, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	100.000	69.3	4.2	Residential
00531302	Residence	10118 DREW CT, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	100.000	69.3	4.2	Residential
00531303	Residence	10114 DREW CT, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	100.000	69.3	4.2	Residential
00531304	Residence	10110 DREW CT, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	100.000	69.3	4.2	Residential
00531305	Residence	10106 DREW CT, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	100.000	69.3	4.2	Residential
00531306	Residence	10102 DREW CT, HUNTERSVILLE 28078	NC 73/ Sam Furr Rd.	65.1	NC 73/ Sam Furr Rd	100.000	69.3	4.2	Residential



- Project
- Tax Parcels
- Noise Buffer 200ft
- Noise Buffer 100ft
- Businesses 100ft
- Residences 200ft

# Noise Monitoring Locations

NC 73/Sam Furr Rd.  
Mecklenburg County, North Carolina  
TIP Project R-2632A



The Louis Berger Group, Inc  
1001 Wade Avenue Suite 400  
Raleigh NC 27605  
919.866.4400

**Appendix D**  
**Public Involvement**  
**(Newsletters and Handouts)**

# NC 73 (Sam Furr Road)

## Widening

### Town of Huntersville

#### Community Workshop to be Held!

**Dec. 12, 2006**

**Huntersville Town Hall**

**6:30pm – 8:00pm**

**Drop-in Format**

#### For More Information, Please Contact:

##### **Brian Dehler, PE**

Project Manager (STV / RWA)  
1000 W. Morehead St.  
Charlotte, NC 28208  
704.372.1885, ext. 1034  
[brian.dehler@rwhitehead.com](mailto:brian.dehler@rwhitehead.com)

##### **David Jarrett, PE**

Town Engineer/Public Works Dir.  
11316 Sam Furr Road  
PO Box 664  
Huntersville, NC 28070  
704.875.7007  
[djarrett@huntersville.org](mailto:djarrett@huntersville.org)

##### **Aldie Whitmore, PE**

NCDOT Div.10 Project Engineer  
716 W. Main Street  
Albemarle, NC 28001  
704.982.0101  
[awhitmore@dot.state.nc.us](mailto:awhitmore@dot.state.nc.us)

#### Project Introduction

The North Carolina Dept. of Transportation (NCDOT) is proposing to widen NC 73 from west of US 21 to east of SR 2693 (Davidson-Concord Rd.) and has designated this project in the Draft 2007–2013 Transportation Improvement Program (TIP) as Project No. R-2632. The TIP shows the project broken down into two segments; 1) R-2632A from US 21 to NC 115, and 2) R-2632AB from NC 115 to SR 2693 (Davidson-Concord Rd.).

#### **TIP Project Schedule**

<u>R-2632AA</u>		
FY 2012	\$2,600,000	
<u>R-2632AB</u>		
Post Year	\$13,500,000	(Unfunded)

The Town of Huntersville has entered into a municipal agreement with the NCDOT to provide advance funding for R-2632AA segment and begin construction in 2007. The NCDOT will reimburse the Town as the TIP construction funds become available in 2012.

Due to the age of the original planning document (1993) and the rapid development of the corridor, the NCDOT and Federal Highway Administration (FHWA) have agreed to re-evaluate and update the information contained in the original planning document.

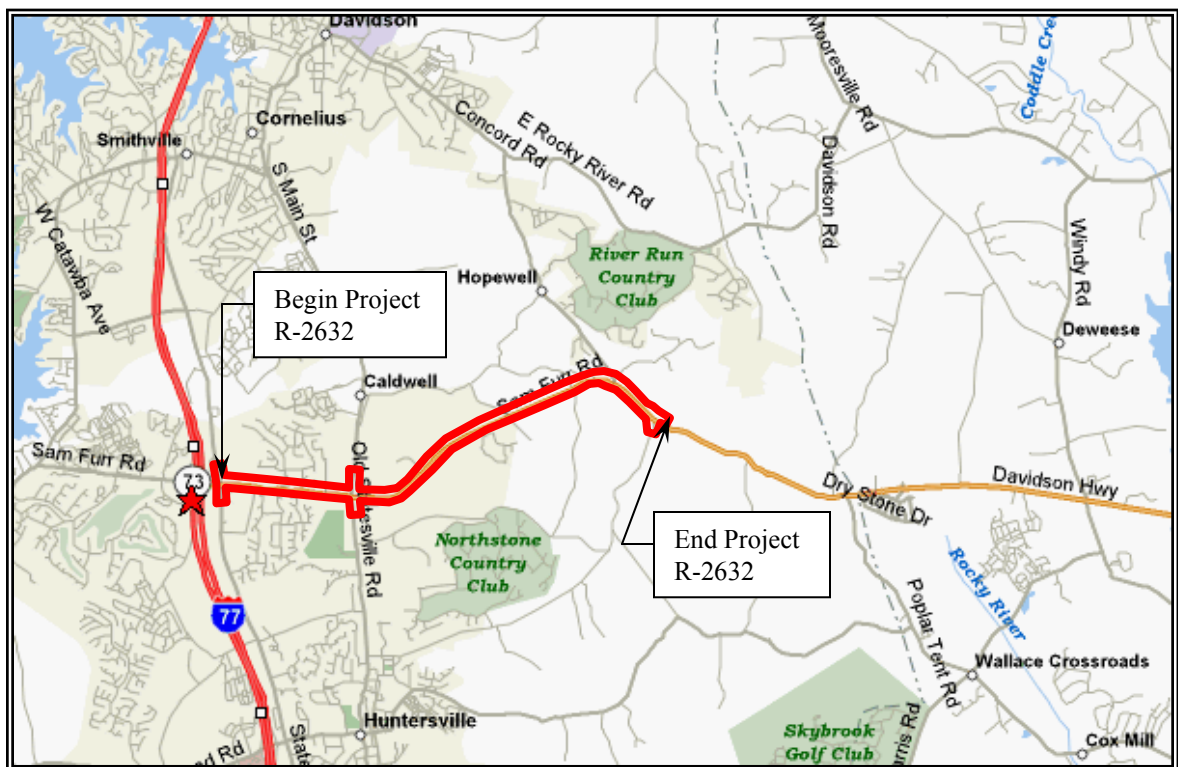
The purpose of the project is to widen NC 73 to reduce congestion and improve safety and mobility throughout the corridor.

#### Community Involvement

A Citizens Informational Workshop will be held at the Huntersville Town Hall on December 12, 2006 from 6:30pm – 8:00pm. The meeting will follow an informal format and you are encouraged to drop in at your convenience to review information on the concepts, ask questions, and offer your input. Public input is very important to developing project alternatives and to the overall success of the project.



STV / Ralph Whitehead Associate, Inc.  
1000 W. Morehead Street, Suite 200  
Charlotte, NC 28208



**Project Location Map**

# NC 73 (Sam Furr Road)

## Widening

### Town of Huntersville

#### Public Informational Meeting to be Held! (NEW DATE)

**May 9, 2007**

**Huntersville Town  
Hall**

**6:30 pm – 8:00 pm**

**Drop-in Format**

#### For More Information, Please Contact:

**Brian Dehler, PE**

Project Manager (STV / RWA)  
1000 W. Morehead St., Suite 200  
Charlotte, NC 28208  
704.372.1885, ext. 1034  
brian.dehler@stvinc.com

**David Jarrett, PE**

Town Engineer/Public Works Dir.  
11316 Sam Furr Road  
PO Box 664  
Huntersville, NC 28070  
704.875.7007  
djarrett@huntersville.org

**Aldie Whitmore, PE**

NCDOT Div.10 Project Engineer  
716 W. Main Street  
Albemarle, NC 28001  
704.982.0101  
awhitmore@dot.state.nc.us

#### Project Recap

The North Carolina Dept. of Transportation (NCDOT) is updating a plan to widen NC 73 from west of US 21 to east of Davidson-Concord Rd (SR 2693). Upon completion of the study, a widening project is proposed from US 21 to east of NC 115, along with improvements to both intersections. The purpose of the project is to reduce congestion and improve safety and mobility throughout the corridor.

The Town of Huntersville wants to accelerate NCDOT's project schedule (which calls for construction in 2012), and begin construction of the proposed improvements from US 21 to east of NC 115 within the next year.

A Public Informational Meeting was held on December 12, 2006 at the Town of Huntersville Town Hall. The public meeting was scheduled to afford residents and business owners in the project area with the opportunity to provide public input. We received comments and suggestions regarding turn lanes into neighborhoods, the addition of traffic signals, median openings, and landscaping. A summary of the meeting and comments received can be found at: [www.huntersville.org/trans\\_9a.asp](http://www.huntersville.org/trans_9a.asp)

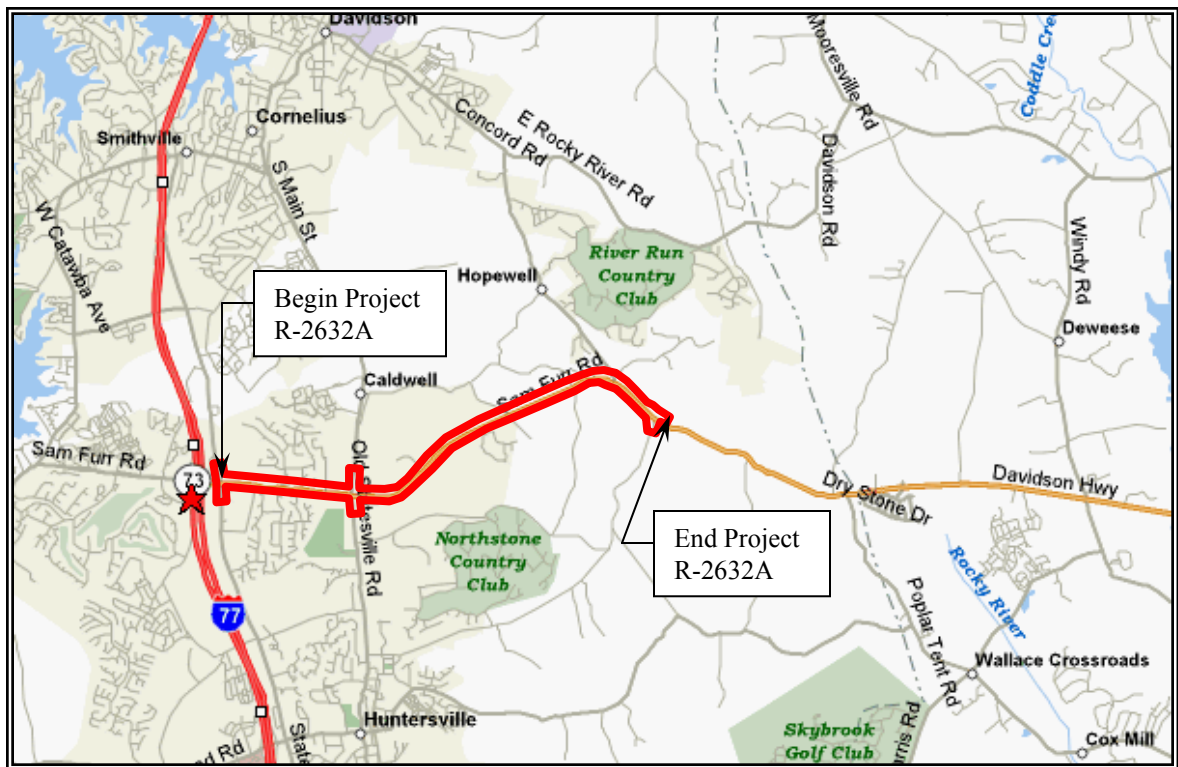


#### Current Project Status

Since the first Public Informational Meeting, the project team has reviewed public comments, performed environmental studies, and has coordinated with regulatory agencies. We have also met with other interested parties such as CATS, and have completed preliminary designs. A best-fit alignment has been designed, and provides a combination of north-side and south-side widening, shifting the alignment where necessary to avoid sensitive natural and human environment features.

#### 2<sup>nd</sup> Public Informational Meeting

The project team would like to meet with the public again to provide you with more updated information on the project design and alignment. A second Public Informational Meeting will be held at the Huntersville Town Hall on **May 9, 2007** from 6:30 pm – 8:00 pm. We hope you can make it as public input is very important to the overall success of the project.



## Project Location Map

STV / Ralph Whitehead Associate, Inc.  
1000 W. Morehead Street, Suite 200  
Charlotte, NC 28208

**NEW MEETING  
DATE  
(See Inside)**

# Rich Hatchett Road



Community Association

May 11, 2007

From: Rich Hatchett Road Community Association, Gloria Potts, President

To: Jerry Cox and Zac Gordon, Town of Huntersville  
Ed Lewis, NC Department of Transportation

## **Re: Rich Hatchett Road Community**

The construction of Interstate 77 and the Exit 25/Sam Furr Road Interchange has spawned rapid growth in this northern Huntersville area – including additions of the Northcross Shopping Center, Hampton and Green Farms subdivisions (and more recent Shoppes On Stateville). All now surround Rich Hatchett Road (RHR) residents – a small African-American community settled there for over a century. Taken together, these new developments have greatly increased traffic problems around the area, but with a disproportionately adverse impact, *within* the RHR community.

Speeding, cut-through traffic (to avoid the busy signalized intersection at Statesville and Sam Furr) has dramatically changed the quality of life of residents of Rich Hatchett Road who have had to bear a significantly heavier burden than surrounding residential areas. The Rich Hatchett Road neighborhood –which lacks sidewalks, meaningful speed deterrents or adequate street lighting - was never designed to handle the existing cut-through traffic – let alone the exponential growth in traffic with the Fall '07 opening of the new shopping mall on Sam Furr and the planned widening of Sam Furr in '08. Crossing the street just to look the mail box has become a dangerous task because of oncoming speeding cars, trucks and buses.

Clearly, the Rich Hatchett Road community has borne – especially in the last 10 years - a disproportionate adverse impact from the changes occurring around it. Despite repeated requests to local officials for basic amenities (sidewalks, curbs, adequate street lighting, speed bumps, end to commercial rezoning of residential property, etc) little has been actually done to improve the declining safety and quality of life issues of the residents. Without needed relief as afforded by the law and good community standards, the planned widening of Sam Furr and opening of new phase of shopping center will exacerbate these problems to almost unimaginable levels.

As you requested on Wednesday night, May 9<sup>th</sup>, here is a bulleted list of the requested changes from residents of Rich Hatchett Road:

- Utilize a yellow caution light (appropriately placed) on Rich Hatchett Road to deter speeders and possibly save someone's life.

- Revisit/ adequately research whether state can in fact add speed bumps or permit special use of speed bumps in this case.
- Add curbs and sidewalks to one side of Rich Hatchett Road (this has been “on a list” for over a decade, but has never manifested)
- Conduct appropriate study regarding any needed changes to fix ‘the curve’ (hair pin’ turn on Rich Hatchett Road. A number of speeding cars have run into the fence at this location.
- Implement tracking devices at appropriate time intervals (eg, now, immediately after Sam Furr widening begins, etc) to statistically record the number and speed of vehicles along Rich Hatchett Road – so that traffic experts may employ other solutions as deemed necessary at the time.
- Officially lower the speed limit (to 15-20 mph) and post the needed signs on Rich Hatchett Road. Also determine what options exist for lowering the speed limit on the Statesville Road (that portion of the Rich Hatchett Road Community) so that residents may turn into their yards without repeated fear of being back-ended.
- Post “No Cut Through Traffic” signage on Rich Hatchett Road.
- Ask police to periodically patrol and ticket speeders as appropriate. Despite the high numbers of speeders through the neighborhood, amazingly we have no evidence that anyone has ever received a speeding ticket.
- Follow-through on the addition of adequate street lighting for the safety of residents and motorists. It is dark on Rich Hatchett Road at night! There was already a formal, signed agreement to fix these lighting concerns in the 1998 Neighborhood Plan between the RHR community and the Town of Huntersville.
- Activate **periodic** use of monitors that flash the speed of motorists so that they are aware that they are breaking the speed limit. How frequently can these be used?
- Provide adequate special advance notices of road closures (eg Sam Furr or other connectors) during widening/construction.
- Provide agreed on process for regular ongoing communication link between RHR neighborhood and Town/DOT during the 2 year road design/build process. Include an appropriate budget for communication and given the “change as we
- While planning, understand and be sensitive to the historical significance and historic landmark consideration being given to the Rich Hatchett home.

Following your review, we welcome discussion. You may reach me at 704-507-9985.

*Gloria A. Potts*

Gloria A. Potts  
(704) 507-9985

# Notes for Meeting with Holly Point Businesses

Thursday January 26, 2009, 2:30 – 4:00 p.m.

## Introduction

Bill Coxe started the meeting by giving those in attendance an overview of the history of the project – dating back to the first environmental document in 1993 and bringing them through the current process. He explained the evolution and comments that led the town and consultants to the quadrant roadway intersection/quadrant left concept so as to protect access for the businesses and the quadrant roadway is much more efficient than a conventional intersection and how it works. With regard to cost and timing, he told the audience that the town would go as far as it could afford...with or without stimulus money...without stimulus money, the town would probably go as far as Cambridge Grove Drive. Construction could start mid-winter (2009-10) which would coincide with a strong educational campaign.

## Questions/Comments from the Audience

### 1 – Steve Pace, 9601 Holly Point Drive

Q - Question on notices related to Holly Point Drive, said he'd never received any notice of any of the 3 meetings, found out about this one from flier at office...

A – Bill told him we'd check mailing list as notices were sent all along NC73 from the interstate to Ramah Church Road (covering the study area)

Q -What ADT would be on Holly Point Drive?

A – 2,000 today → 14,000 in 2030 (Bill – rough estimate)

Q – Concerned his business would not function when project happens (questioning whether DOT would allow driveway permit or not), not seeing any positives for businesses on Holly Point

A – Bill – his personal opinion that things will be better in the overall area than the conventional treatment

Q – Any thought to making Rich Hatchett the hook?

A – proposal over time is to relocate Rich Hatchett and that becomes part of the system (77 interchange modification)

### 2 – Chris (O'Charley's) –

Q – You mentioned the only option out of our area is south on 21, you used a U-turn as part of the option...that causes more problems than it creates, we rely on people from I-77 coming in, my business will not survive...this seems like a death blow.

A – Bill – it's too close to NC73, under any scenario, left turns would not be allowed. Under this, they can come straight across from Holly Point. It's safer and more efficient.

**3 – Susan Gammon (Tom Brown Orthopedic in Presbyterian Northpoint)**

Q – There are people who've died turning left, people are going to do u-turns in our parking lot in the Presbyterian parking lot...when 77 clogs up, people go off on 21. All proposed looks good, looks like making long roundabout, but people who shop in the area will not know what to do...

A – Bill – an informational/educational campaign is needed

**4 – Jackie Pace (Huntington Learning Center)**

Q – Is the purpose of this meeting to let us vent or to let you go back to the drawing board? I do not believe planners would have access to this info...you've created a freeway within a few hundred feet of buildings involved with children – we'll have to watch that no one gets killed.

A – Bill – we want to show you what's been evolved. This is the best we came up with to deal with the situation...

**5 – Chuck Dethloff (Intercoastal Group - Country Suites)**

Q – Feel this will greatly impact our business; do you do any research on economic impact? Lefts are very dangerous, why isn't that possible if you let go straight across the intersection (Holly Point)

A – Part of that (allowing lefts out of the west side of Holly Point) relates to the efficiency argument, the number of movements, the amount of time it takes...

**6 – Tom Cone (Chili's)**

Q – Further down by the hospital, could we connect that road to let our people exit there? (This is referring to a north/south connection on the west side of US 21 between the private road next to O'Charley's and the Carolinas Health Care System facility parking lot.)

A – Bill – it is part of our goal over time (on 21/73 plan). Also a separate study on I-77 interchange, some of the ideas allow you get off the ramp sooner to traffic signal at Rich Hatchett or Holly Point Drive (long-term) – study will include extra road network in area, once study done, will start looking at details...

**7 – Alex Kilgore (HGI)**

Q – What kind of increase do you expect 21/73 to get (2030)?

A – Bill – it's doubling

Q – It does seem unfair – it's just doubling, but its 7-fold on them (Holly Point Drive Businesses), most for some is interstate traffic...

A – Concern about businesses in the northwest quadrant because of interstate traffic, can't get to them...

Q – Have you thought about putting roundabout on 21/Holly Point...traffic circles do work well, it's a safe U-turn

A – Bill – that would require multi-lane roundabouts

A – Jim Dunlop (NC DOT) – traffic on 21 is too heavy for even a 2-lane roundabout. On 21, a right turn followed by a U-turn is far safer than a left turn. Remember, 21 will be wider...

A – Zac Gordon (Town Planning) – Distance to make the U-turn is not far. For those on Gilead Road between the interstate and Reese Blvd, it's replicating that...

#### **8. David Baker (Baker & Baker Law Firm)**

Q – We're across the street from SunTrust, this seems counterintuitive, will kill businesses, especially O'Charley's. I think we need to have freedom of movement.

A – Bill – to do that, we need to add a lane, meaning we'd need to take parking from businesses (to account for the additional lane)

Q – so do that...I think stop worrying about the perfect intersection and do what works for the people around here. Interstate traffic will avoid our exit. What will we do about the CATS busses?

A – Bill – We are relocating them off Holly Point, targeting Holly Crest

Q – Will you make a cul-de-sac there?

A – Bill – yes, we're planning to build a cul-de-sac at the end of Holly Crest...

#### **9. John Zika (Director North County Regional Library)**

Q – Library always hidden back there, sacrifice because so heavy with traffic – about 800 to 1,200 people a day...I think we are going to rub them wrong if that have to jump through hoops to get to the library...the quad left, were there any that were built where there are any existing businesses? Its almost like telling we're willing to sacrifice your businesses for the greater good of the area

A – Bill – if we don't do this concept...Holly Point and NC73 will have a solid median, no lefts; Holly Point and US21 will have a median with a left into but no left out; right in, right out; no straight across. That (conventional design) makes it easier for the driver, less traffic on Holly Point...but I think more drivers can arrive/park from more different directions with the quad left.

#### **10. David Baker (Baker & Baker)**

Q – What about equal protection under the law? You let AAC do whatever they want, think helping large businesses, not us...suggesting lawsuit

A – Bill – most of AAC's access will be right in, right out

A – Jim Dunlop – no left in if this concept is not built

#### **11. Jackie Pace (Huntington Learning Center)**

Q – I think the only people in the room who like this concept are the people who put it together...To whom should we take our complaints? Is there a meeting we should attend? We need to be proactive...

A – Bill – The design is ultimately approved/implemented by NCDOT. We are willing to hear/do the best with your concerns...will summarize concerns to

decision makers. Tawana Brooks is the closest to the people with DOT who are the decision makers.

A – Steve Pace – Division 10 Engineer Barry Moose is who you should contact, he's on DOT's website...also, you should contact all Huntersville commissioners, they will be part of the decision makers...

A – Jim Dunlop – Tawana Brooks is the Division Construction Engineer, Barry has made her the contact person on this project. The other person is Kim Bereis, she's on the contact info sheet, she's DOT's consultant on this project...

## **12 – Alex Kilgore**

Q – Did STV consider the environmental impact?

A – Bill – The quadrant concept equals a reduction in emissions, wait time, etc.

Q – talk about AAC, do they own all out there?

A – Bill – they don't own the Target, I don't think AAC would have right to negotiate on behalf of them...

## **13 – Vince Winegardner (NCMP)**

Q – What happens if we do nothing? Things get worse. If this plan is the best you could come up with, right turn/u-turns, seems to work okay on Gilead with the hospital...I would feel better if they closed the U-turn in front of my business...we have a lot of first time customers...

## **14 – Jim Dunlop to Stephen Pace –**

Q – Jim Dunlop – How do people get to your business today? They make lefts off of Holly Point from 21...14,000 trips a day...there are about 12,000 on Gilead Road today.

A – Stephen Pace – Peak hour, the road will be backed up.

Jim Dunlop – primary traffic volume is from the interstate east, won't be too much worse than today...

Q – Pace – eliminate my driveway, put my entrance into my building in front of my dumpster, that's not okay! It's not okay to sacrifice the tenants in that building.

A – Bill – we believe this concept will work better for your businesses than the design shown in May '07.

## **15. Not sure who asked.**

Q – Where is the median opening on Holly Point?

A – Bill – it is only at Holly Crest, to do lefts into more businesses, it would take more space, taking away extra parking...

## **16 – Chuck Dethloff (Intercoastal Group – Country Suites)**

Q - With the Town being partner in this, I'm surprised no economic impact study was done...

A – Bill – I’ve never seen an economic impact study done on restricting median access during the planning for a road widening in our area.

A – Jim Dunlop – if you look at the research on this, the impulse businesses (gas stations, fast food) there is some impact, but the destination businesses have no impacts, some improve because of better access.

## **17 – Alex Kilgore**

Q – Does this take into account the Westmoreland exit?

A – Jim Dunlop – the first concern is I-77, don’t want traffic backing out onto the through lanes. This alleviates the biggest problem, which is drivers making a right off the interstate who want to go left. This is the best access we can provide if we accept that 21 and 73 have to be widened. Max has been talking about access throughout this process as much as he can...we do see access to be better. The perception is its different so its bad – 15 years ago, we would not have thought about roundabouts but they’re gaining...with conventional intersections, we can’t keep adding traffic to the same traditional systems...referencing an earlier comment – sometime freedom has to be controlled a bit to make everything operate better

Q – David Baker – I talked about freedom of movement, perfect intersection people are not going to want to go through...people aren’t going to come back...it’s asinine to limit access on Holly Point...don’t cut off our nose to spite our face...give us more access...if you don’t like my idea, feel free to buy my business...

Q – Jackie Pace – I think we need to stick together...let’s talk...

## **Other Questions:**

Q – Alex – When? Is it about getting stimulus money?

A - Bill – The project total is estimated between \$16 and \$28 million, the Town has \$9 million and we estimate as far as we can go is just past Northcross Village. If we get stimulus money, widening goes further.

Alex – we see this exit as the economic powerhouse of Huntersville – we hate to see it destroyed because we’re going for stimulus money

Q – Paces - Decision date on this?

A – Bill – End of March – Environmental Document is due. April is stimulus deadline. May or may not be time to make small adjustments.

# NC 73 (Sam Furr Road Widening) Town of Huntersville, Mecklenburg County NCDOT State Transportation Improvement Program (STIP) No. R-2632



Issue No. 3

February 2009

## MARK YOUR CALENDARS!

**3<sup>rd</sup> Public Informational Workshop**  
**Thursday, February 26, 2009 6:00–8:00 pm**  
**Town of Huntersville, Town Hall**

### Project History and Recap

The Town of Huntersville, in cooperation with the NCDOT, is proposing to widen NC 73 (Sam Furr Road) from west of US 21 to east of SR 2693 (Davidson-Concord Road) in northern Mecklenburg County. The project is divided into two sections in the NCDOT's STIP:

**R-2632AA** – from US 21 to NC 115 (scheduled for construction in 2012)

**R-2632AB** – from NC 115 to SR 2693 (Davidson-Concord Road) (construction unfunded)

The purpose of the proposed project is to improve mobility, reduce congestion, improve traffic flow, and enhance safety along the NC 73 corridor.

The proposed project was entered in the NCDOT STIP in 1990. An environmental document was completed and signed by both the NCDOT and Federal Highway Administration in 1993. A shift in funding priorities has delayed the project's implementation. In 2006, the Town of Huntersville entered a municipal agreement with the NCDOT in order to accelerate the project.

Due to the age of the original environmental document (1993), and the rapid development of the corridor, the NCDOT and the FHWA have required a re-evaluation and update to the original environmental document. The project development, preliminary engineering, and environmental studies for the project are being conducted in compliance with the National Environmental Policy Act (NEPA).

### Workshop Purpose

Since the May 2007 workshop, the Town and the NCDOT have refined the proposed project design. The purpose of the upcoming workshop is to present recommended bicycle/pedestrian provisions and updated designs, including the use of a quadrant roadway concept that uses Holly Point Drive to support the operation of the US 21/NC 73 intersection, as well as access recommendations along the corridor.

We encourage you to attend this workshop. The workshop is being held to familiarize the community with the recommended alignment and design, and to gather

input/comments. The workshop will be an informal open-house with project maps and other information available for review. You can drop in at any time to ask questions and offer comments. Study Team representatives will be present for one-on-one discussions about the proposed project.



■ STV/Ralph Whitehead Associates  
Attn: Kimberly D. Bereis, AICP  
1000 W. Morehead Street, Suite 200  
Charlotte, NC 28208

Questions or comments about the proposed project? Please contact one of the following:

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Charlotte, NC 28208  
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*In compliance with the Americans with Disabilities Act (ADA), the Town will provide auxiliary aids and services for disabled persons who wish to participate in the Workshop. To receive special services, please contact Mr. Bill Coxe by phone (704-875-6541) or email (bcoxe@huntersville.org) by February 19th.*

**VISIT US ON THE WEB at**  
**[http://www.huntersville.org/trans\\_9.asp](http://www.huntersville.org/trans_9.asp)**  
**for project information.**

**NOTE:** *Parking at Town Hall is limited. Please view the website for other parking options.*

# NC 73 (Sam Furr Road Widening) Town of Huntersville, Mecklenburg County NCDOT State Transportation Improvement Program (STIP) No. R-2632



February 26, 2009

**WELCOME** to the 3rd workshop for NC 73 Improvements. Thank you for your interest in this project and for joining us tonight.

The Town of Huntersville, in cooperation with the NCDOT, is proposing to widen NC 73 (Sam Furr Road) from west of US 21 to east of SR 2693 (Davidson-Concord Road) in northern Mecklenburg County. The project is divided into two sections in the NCDOT's STIP:

- R-2632AA – from US 21 to NC 115 (scheduled for construction in 2012)\*
- R-2632AB – from NC 115 to SR 2693 (Davidson-Concord Road) (construction unfunded)

## PROJECT NEED

Heavy traffic occurs daily along this corridor, resulting in frequent congestion and delays. Also, intersections along the corridor (notably NC 73/US 21) operate over capacity, contributing to the “stop and go” or “slow and go” conditions. The project is also anticipated to enhance safety along the corridor.

\* The NCDOT has placed STIP R-2632AA on the list of projects for the proposed American Recovery and Reinvestment Plan (a/k/a President Barack Obama's economic stimulus package) eligible to receive funding for highway improvements. This federal allocation could accelerate scheduled construction for this portion to late 2009. (NOTE: Passing of the stimulus package would not guarantee early funding for this project). Due to different schedules for implementation, a higher level of detail for Section AA is being shown tonight.

Since the May 2007 workshop, the Town and the NCDOT have refined the proposed project design. The purpose of this workshop is to present updated:

- Recommended bicycle/pedestrian provisions – Due to high traffic volumes on this roadway and the high number of driveway access points, the proposed design is an outside shared lane as opposed to a designated bicycle lane.
- NC 73/Holly Point Drive and US 21/Holly Point Drive intersections – The NCDOT's Congestion Management Unit requested the study of an unconventional quadrant-left intersection. The Town and the NCDOT have developed a quadrant roadway concept for the Holly Point Drive area. Eastbound and westbound left turn movements at the intersection of NC 73 and US 21 would be restricted, with vehicles needing to make these turn movements using the quadrant roadway. Holly Point Drive would be widened and traffic signals installed at each intersection (at NC 73/Holly Point Drive and US 21/Holly Point Drive). The quadrant roadway is anticipated to decrease delays at these intersections.

## WHAT'S A QUADRANT ROADWAY INTERSECTION AND WHY EVALUATE ONE FOR NC 73?

Significant traffic volumes on heavily traveled roadways can cause severe congestion problems at major intersections. Congestion at this intersection reaches critical levels during the peak AM and PM periods.

As originally designed, before the year 2030 commuters would again experience considerable delay through the intersection of NC 73 and US 21. Furthermore, access to development adjacent to NC 73 would be restricted severely.

The figure below provides a schematic of the proposed quadrant roadway intersection operations and how the NC 73 eastbound and westbound left-turn lanes to US 21 would be rerouted.



Based upon traffic analyses conducted for this alternative, this type of intersection provides considerable improvement to the original concept, including:

- Less delays to the overall operation of the NC 73 and US 21 intersection.
- Improvement at the intersection of NC 73 and Rich Hatchett Drive (this layout would reduce the eastbound U-turns from this intersection).
- Allows for direct access from NC 73 eastbound to the shopping center on the north side of NC 73 opposite of Holly Point Drive and westbound to the businesses along Holly Point Drive south of NC 73.

## ***I'VE HEARD THIS PROJECT IS GOING THROUGH DESIGN-BUILD. WHAT DOES THAT MEAN?***

A decision has been agreed to by the NCDOT and the Town that this project will be implemented through what's called the Design-Build (D/B) Process. Here are some basic facts about the D/B Process:

- Traditionally the project implementation process (following planning activities) is to design, then bid, then build. With D/B, the design and construction aspects are contracted for with a single entity known as the Design-Build Team (or Contractor).
- The D/B process reduces the delivery schedule by combining the design, permit, and construction schedules in order to streamline the traditional design-bid-build environment. This does not shorten the time it takes to complete the individual tasks of creating construction documents (working drawings and specifications), acquiring permits, or actually constructing the project. Instead, design and construction professionals work in a collaborative environment to complete these tasks at the same time.

## WHEN CAN WE EXPECT THIS PROJECT TO BE BUILT?

That depends. With the recent economic stimulus package approval, it could be sooner than we all anticipated, but only for a portion of the overall project. If the project is approved to receive this funding, the NC Board of Transportation could award the project to a D/B Contractor as early as August of 2009. However, the extent of how much of the project is built varies depending on the funding available through the stimulus package and previous funding sources. The goal is to have the project completed up to NC 115 through the D/B process, but funding constraints could preclude that. Section "AB" from NC 115 to SR 2693 (Davidson-Concord Road) remains unfunded, and that portion is still many years out from being implemented.

### WHAT'S NEXT?

In the next few months following tonight's workshop, the Study Team will wrap up project development, preliminary engineering, and environmental studies for the project.

## QUESTIONS?

If you have any questions or comments concerning improvements to NC 73, please contact:

**Kim Bereis, AICP, Project Manager**

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### COMMENTS?

Your comments are important to us. Please provide your input on the attached comment form. Please insert your comment form in the Comment Box, hand it to a Study Team member, or forward it to a project contact listed above.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.